REMEDIAL SITE ASSESSMENT DECISION - EPA REGION IV

EPA ID: ALSFN0407077 **Site Name:** JAFFE WHOLESALE IRON AND METAL COMPANY **State ID:** 6883

Alias Site Names:

City: BIRMINGHAM **County or Parish:** JEFFERSON **State:** AL

Refer to Report Dated: **Report Type:** PRELIMINARY ASSESSMENT 001

Report Developed by: STATE

DECISION:

- [X] **1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:**
  - [X] **1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Remedial Action Planned - NFRAP)**
  - [ ] **1b. Site may qualify for action, but is deferred to:**
- [ ] **2. Further Assessment Needed Under CERCLA:**
  - **2a. *Priority:*** [ ] **Higher** [ ] **Lower**
  - **2b. Other: (recommended action)** NFRAP (No Futher Remedial Action Planned

DISCUSSION/RATIONALE:

Lack of groundwater and surface water targets.

Site Decision Made by: ANNIE GODFREY

Signature: Annie M. Godfrey **Date:** 09/18/2000

EPA Form # 9100-3

68893

FROM:

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
POST OFFICE BOX 301463 • 1400 COLISEUM BOULEVARD 36110-2059
MONTGOMERY, ALABAMA 36130-1463

PRELIMINARY ASSESSMENT
FOR
JAFFEE WHOLESALE IRON AND METAL COMPANY
BIRMINGHAM, JEFFERSON COUNTY, ALABAMA

EPA ID No.: 7077

CERCLIS SITE REF. No.: 0000928762

ADEM FORM 194 7/99

SITE: 1.8
vol. 1

PRELIMINARY ASSESSMENT FOR
JAFFE WHOLESALE IRON AND METAL COMPANY
BIRMINGHAM, JEFFERSON COUNTY, ALABAMA
EPA ID No.:7077
CERCLIS SITE REF. No.: 000009280762

Prepared By
Paul I. Oyegbeda
Alabama Department of Environmental Management
Land Division
Hazardous Waste Branch
Program Support Unit

TABLE OF CONTENTS

DATE: *February 10, 2000*

PREPARED BY: *Paul I. Oyegbeda (Site Investigator)*
Program Support Unit
Hazardous Waste Branch
ADEM -Land Division

SITE NAME: *Jaffe Wholesale Iron and Metal Co.*
2850 5th Avenue North
Birmingham, AL 35203

EPA ID No.: *7077*
CERCLIS No: *000009280762*

1. INTRODUCTION

Under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) and a cooperative agreement between the U. S. Environmental Protection Agency and the Alabama Department of Environmental Management (ADEM), a Preliminary Assessment (PA) was conducted at the Jaffe Wholesale Iron and Metal Company Site in Birmingham, Jefferson County, Alabama. The purpose of this investigation was to collect information concerning conditions at the site sufficient to assess the threat posed to human health and the environment and to determine the need for additional investigation under CERCLA/SARA or other action. The scope of the investigation included a review of available file information, a comprehensive target survey, and an onsite reconnaissance.

2.SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

2.1 Location

The Jaffe Wholesale Iron and Metal Company site is located in Birmingham, Jefferson County, Alabama (Fig. 1). The United States Geological Survey's (USGS) 7.5 Minute Quadrangle Map entitled Birmingham North, Alabama shows the location of the site to be in the southwest ¼ of the southwest ¼ of Section 30 Township 17 South, Range 2 West (Fig.2, Ref. 6). The latitude and longitude have been estimated to be 33° 31' 48" North Latitude and 86° 47' 40" West Longitude (Ref. 4).

The climate of Jefferson County is characterized as humid subtropical with hot summers, mild winters, and precipitation during all months of the year. The average annual temperature is approximately 62° with an average annual rainfall of approximately 54 inches. The average temperature in the summer is 79° and in the winter is 45° (Spivey, 1982). Approximately 22 inches of the 54 inches of rain per year runs off into the streams (Knight, 1976, Ref. 6).

2.2 Site Description

The Jaffe Wholesale Iron and Metal Company site is in the southwest ¼ of the southwest ¼ of Section 30 Township 17 South, Range 2 West, northwest Bessemer Quadrangle, Map, Alabama (Fig. 1). The site is comprised of 2 parcels. The Northern two-thirds is owned by the Kimerling Family, and the southern third is owned by the Vickers. The Kimerling's property is approximately 6.61 acres, while the Vickers' property is approximately 3.31 acres. The site is covered with mixed concrete and building debris, waste material, weeds and bushes. There are no buildings on the property, nor is there any fence or site barrier. Evidence indicates that the property is used by trespassers. The property is bounded by 2nd Avenue North to the south, 5th Avenue North to the north, 28th Street North to the west, and 29th Street North to the east (Ref. 3). The site is in the midst of an industrial and commercial area with no residence nearby.

Nearby businesses to the property include Kimerling Wholesale Truck Sale (inactive) and Van Lear to the north. Birmingham Hide and Tallow lies to the south. Sullivans and Kirkpatrick lie to the southeast. Old Ryders along with CIP City Truck and Trailer Parks lie to the northeast. Barnett Plumbing, HVAC Electrical Hardware are located to the northwest and Penske to the west.

2.3 Operational History and Waste Characteristics

The Jaffe Wholesale Iron and Metal Company site is located on 2850 5th Avenue North between 28th Street North to the west, and 29th Street North to the east (Fig. 1). The property is bounded by industrial and commercial operations, and it is situated in a developed area of Birmingham, Jefferson County, Alabama.

A review of historical Sanborn Map for the year 1911 revealed the site as undeveloped open lot. However, the Sanborn Maps for 1951 and 1969 showed the subject site in operation as Jaffe Wholesale Iron and Metal Company (Att. 1). The aerial photograph of 1956, 1977, 1985, and 1993 revealed the property is operational as Jaffe Wholesale Iron and Metal Company. Currently the site is a vacant lot.

These aerial photographs also showed the Birmingham Hide and Tallow (BH&T) site operational along the contiguous southwestern property boundary. The BH&T site was operated as an animal hide stripping and preparatory factory (Att. 1).

3. GROUND WATER PATHWAY

3.1 Hydrogeologic Setting

Sedimentary rocks that range in age from Cambrian to Holocene underlie Jefferson County. Rocks in the northwestern half of the county have gentle dips and those in the southeastern half of the county are steeply dipping and overturned in many places as a result of folding and faulting. The gently dipping rocks in the Warrior basin are separated from the disturbed units in the Valley and Ridge by the Appalachian structural front, a tectonic zone situated along the northwestern edge of Birmingham Valley. The Alabama Valley and Ridge section consists of a series of northeast to southwest trending valley and ridges, and is composed of the Birmingham Valley, Cahaba Ridges, Cahaba Valley, and the Coosa Ridges (Hunter and Moser, 1990).

The site is located within the outcrop area of the Cambrian age Ketona Dolomite (Figure 5). The Ketona Dolomite ranges in thickness from 250 to 760 feet and consists of light-gray coarsely crystalline thick-bedded, mostly chert-free dolomite (Raymond, et al, 1988). Areas underlain by the Ketona Dolomite are susceptible to karst formation (Szabo, et al., 1979).

The axis of the Birmingham Anticline traverses approximately 1,500 feet to the south of the site and generally trends in a northeasterly to southwesterly direction. The axis of the Blount Mountain Syncline traverses approximately 1 mile to the northwest of the site and trends in a northeasterly to southwesterly direction. The Jones Valley Fault traverses across the southeast corner of the site and also trends in a northeasterly to southwesterly direction. The Opossum Valley Fault is located approximately 2 ¾ miles to the northwest of the site and also trends in a northeasterly to southwesterly direction. Both the Opossum Valley and the Jones Valley Faults are thrust faults. The structural features in the vicinity of the site (Figure 5) should enhance the fractured nature of the bedrock (Szabo, et al., 1979).

The site is located within the recharge area for the Valley and Ridge aquifer system (Moore, 1992). Szabo et al., 1979, noted that the water table in areas underlain by the Ketona Dolomite in Opossum and Jones Valleys can generally be found at 10 to 30 feet below ground surface. The Ketona Dolomite is a major producer of water in Jefferson County, and the availability of groundwater from this formation is generally concentrated in zones of secondary porosity e.g. in solution enlarged openings. Up to 390 gallons per minute may be obtained from wells that are successfully located within one of these solution-enlarged openings.

The estimated porosity of the Cambrian and Ordovician carbonate rocks, including the Ketona, in the Valley and Ridge province is approximately 1.5 percent (Hunter and Moser, 1990).

There are no public water supply wells located within 4 miles of the site. The closest public water supply wells to the site are wells operated by the City of Irondale. These wells are located approximately 5.1 miles to the northeast of the site. The site is not in a designated wellhead protection area, and no wellhead protection areas are located within four miles of the site. Domestic wells are not expected within the 4-mile radius of the site due to the urban nature of the site.

3.2 Ground Water Targets

The Birmingham Water Works and Sewer Board serves the city of Birmingham and surrounding areas. The City of Birmingham purchases 100% of its drinking water from the Birmingham Water Works and Sewer Board. The Birmingham Water System utilizes the Inland Lake in Blount County, Lake Purdy in Shelby County, the Cahaba River and the Mulberry Fork of Black Warrior River as their sources for public water, and it is 100% surface water. All residences obtain potable water from the public water system. According to the water availability data for the City of Birmingham, there are no active public water supply wells within a 4-mile radius of the site; however, there is a possibility of some private wells present within the target distance. Public water is available throughout Jefferson County, and all public water is obtained from distant surface impoundments (Ref. 6, 8).

3.3 Ground Water Conclusions

A release of CERCLA hazardous substances from the site to ground water is suspected because the analytical data submitted by Layton, Inc. in October 1995, to Environmental Resources Management (ERM) for the ground-water samples collected from the installed monitoring wells MW-1, MW-3 and MW-4, revealed ground- water lead contamination with concentrations of 0.023 mg/l in MW-1, 0.006 mg/l in MW-3, and 0.007 mg/l in MW-4 respectively (Att. 1).

4. SURFACE WATER PATHWAY

4.1 Hydrologic Setting

Overland drainage from the site (Figure 3) is to the northeast approximately 1.0 miles into Cotton Mill Creek. Cotton Mill Creek flows approximately 1.5 miles to the north and enters Village Creek. Village Creek flows approximately 12.8 miles to the west and enters Bay View Lake. Bay View Lake comprises the remainder of the surface water pathway from the site. Low flow data was not available for Cotton Mill Creek and Bay View Lake (Hayes, 1978), while Village Creek has an average 7-day flow rate of 0.0 cfs (Ref.10)

The site is located outside the 500-year flood plain interval. There are no wetlands located on site or along the fifteen-(15) mile surface water pathway from the site (Ref. 9, Fig 1).

4.2 Surface Water Targets

There are no known drinking water intakes located within 15 downstream miles of the site (Fig.3, Ref. 6). Cotton Mill Creek and Bay View Lake are not listed in the ADEM Admin. Code R. 335-6-11-.02 with a use classification; however, it is noted in the Regulations that segments not listed should be designated as Fish and Wildlife. Village Creek is listed in the ADEM Admin. Code R. 335-6-11-.02 with a use classification of Agriculture and Industrial from Bay View Lake to it's source.

Of the 22 Federally Endangered or Threatened species identified for this area, 11 species may occur along the banks of the Cotton Mill Creek, Bay View Lake and Village Creek. These waters might be critical to the support of many threatened and endangered terrestrial species (see list of terrestrial species in Section (5.2). Table 1 below lists the aquatic wildlife that is thought to have a high probability of being exposed to contaminants from the Jaffe Wholesale Iron and Metal Company Site if contaminants were to enter into the surface water pathway.

Table 1:	*Aquatic, Federally Endangered or Threatened Species*	
Common Name	***Listing***	***Distribution in Alabama***
Flattened musk turtle	Threatened	Jefferson County/Black Warrior drainage
Watercress darter	Endangered	Jefferson County
Upland combshell mussel	Endangered	Jefferson County/Black Warrior drainage
Fine-lined pocketbook	Threatened	Statewide
Triangular kidneyshell mussel	Endangered	Jefferson County/Black Warrior drainage
Orange-nacre mucket	Threatened	Black Warrior drainage
Alabama moccasinshell mussel	Threatened	Black Warrior drainage
Dark pigtoe mussel	Endangered	Jefferson County/Black Warrior drainage
Ovate clubshell mussel	Endangered	Statewide
Coosa moccasinshell mussel	Endangered	Black Warrior drainage
Inflated heelsplitter mussel	Threatened	Black Warrior drainage

(Ref 10-13).

The distance from the site to the Probable Point of Entry (PPE) to surface water is approximately 1.7424 miles (9,200 feet) in overland distance. The flood frequency of this region is greater than 500-years (Ref. 9, Fig 1). There are no wetlands located on site, nor along the fifteen-(15) mile surface water pathway. There are no signs of stressed vegetation, or other evidence of contamination on surface at the site, or outside of the site (Ref. 3).

4.3 Surface Water Conclusions

There are no visual indications of a release of contaminants to surface water. The proximity of the source to surface water is such that it is highly unlikely that any contaminants could reach the surface water via surface water drainage routes, general surface water drainage from the site (Fig. 3) is to the northeast into Cotton Mill Creek. There are no drinking water intakes within 15 miles downstream of the site (Ref.6). A release of CERCLA hazardous substances from the site is not suspected.

5. SOIL EXPOSURE AND AIR PATHWAYS

5.1 Physical Conditions

The Jaffe Wholesale Iron and Metal Company Site is inactive, and presently there are no workers located on site. The site is not enclosed by a chain-linked fence. Evidence indicates that the property is used by trespassers. The property is covered with mixed concrete and building debris, waste materials, weeds and bushes and does not show any signs of stressed vegetation (Ref. 3).

The Soil Conservation Service (SCS) classifies soils at the Jaffe Wholesale Iron and Metal Company Site as Urban Land (Fig. 4). The soils in this classification are made up of areas covered by commercial, industrial, and high-density residential facilities. These areas have been altered to a nearly level slope and have been changed by cutting, filling, and grading to the extent that the original surface soils are no longer recognizable (Spivey, 1982).

The closest soil unit to the site that is fully described by the SCS is the Decatur-Urban land complex, 2 to 8 percent slopes. These soils are most likely similar to the original soils found at the site. These soils are described by the SCS as gently sloping well-drained soils of urban land on uplands of limestone valleys. The surface layer typically is a dark reddish brown silt loam that is 7 inches thick, and a subsoil that is a dark red clay that is 65 inches thick. The permeability of these soils is moderate, and the surface runoff is moderately slow (Spivey, 1982).

5.2 Soil and Air Targets

The Jaffe Wholesale Iron and Metal Company Site is inactive with no employees on site. There are approximately 131 residences located within a quarter mile radius of the site, and the are no residences nearby. There are at least 59 schools located within a four-mile radius of the site. Thomas School is the nearest School, approximately 1.0610 miles (5,600 ft) northeast of the property boundary for the site. The total population within a four mile radius is an estimated 190,190 people. According to the Alabama 1990 census record for Jefferson County, the persons per household is 2.54 (Ref. 16)

TABLE 2:	*ESTIMATED POPULATION*
DISTANCE FROM SITE	*POPULATION*
0-¼	306
¼-½	1,052
½-1	5,978
1-2	36,087
2-3	54,095
3-4	92,672
TOTAL POPULATION	**190,190**

(Ref. 16-17)

In Table 2 above, the total population within the target area has been broken down into sub-populations that live within each specified distance radius from the site. The Jaffe Wholesale Iron and Metal Company Site is not expected to be a critical habitat for any of the 11 terrestrial Federally designated Endangered or Threatened species, but the Table 3 below lists the terrestrial species that may utilize the land and surface waters located within the specified target areas.

Table 3:	*Terrestrial, Federally Endangered or Threatened species*	
Common Name	*Listing*	*Distribution in Alabama*
Red-cockaded woodpecker	Endangered	Statewide
Florida Panther	Endangered	Statewide
Bald Eagle	Threatened	Statewide
American peregrine falcon	Endangered/Critical Habitat	Statewide
American burying beetle	Endangered	Statewide
Indiana Bat	Endangered	Jefferson County
Arctic Peregrine Falcon	Threatened	Statewide
Bachman's Warbler	Endangered	Statewide/Probably Extirpated
Wood Stork	Endangered	Statewide
Ivory Billed Woodpecker	Endangered	Extirpated Statewide
Leafy Prairie-Clover	Endangered	Jefferson County

(Ref. 11-15).

5.3 Soil Exposure and Air Pathway Conclusions

There does not appear to be any air exposure threat for this particular site. During a recent site reconnaissance, a distinct odor was not noticeable in the air (Ref. 3). However, elevated concentrations of arsenic, mercury, and lead were noted in samples collected at the site (Att. 1). In a 1995 assessment of the property, soil samples were collected at 8 locations on the property and analyzed for the 0-2 foot interval. While concentrations varied, the highest recorded value for lead was 16,100 ppm, for arsenic was 112 ppm, and for mercury was 1510 ppm. These concentrations exceed current EPA screening level for these constituents and are considered to be a concern.

6. SUMMARY AND CONCLUSION

During further evaluation of this site, extensive surficial lead contamination was discovered over a large area of the site (Att. 2). Due to the scarcity of groundwater and surface water targets, no further action or evaluation under CERCLA is recommended at this time. Due to the presence of the surficial contamination and the possibility of direct contact risk for individuals working or trespassing on the property, we recommend further investigation and evaluation of this site at the State level.

7. REFERENCES:

1. The United States Geological Survey's (USGS) 7.5 Minute Quadrangle Maps entitled North Bessemer, Alabama 1959. Scale 1:24,000.

2. Trimble Navigation Limited Survey & Mapping Division, GPS Pathfinder GeoExplorer II and Pathfinder Office Version 2.11, January 1999.

3. Bonnie Temple, Clethes Stallworth, and Paul I. Oyegbeda, Trip Report for Jaffe Wholesale Iron and Metal Company Site Birmingham, Alabama, 000009280762, Ref. No. 7077 Trip date: February 4th , 2000.

4. Bonnie Temple, Clethes Stallworth, and Paul I. Oyegbeda, Photo-documentation log for Jaffe Wholesale Iron and Metal Company Site Birmingham, Alabama, 000009280762, Ref. No. 7077 Trip date: February 4th , 2000.

5. Oyegbeda, Paul I., ADEM, Land Division, Hazardous Waste Branch, Telephone Conversation Record, Telephone Date: December 13, 14, and 29, 1999.

6. Gibson, Joseph L., ADEM, Water Division, Groundwater Branch, Preliminary Assessment-Groundwater, Jaffe Wholesale Iron and Metal Company Site, Birmingham, Birmingham County, Alabama, 000009280762, Ref. No. 7077 June 7 2000.

7. ADEM Special Projects Waste Land Data Base (CERCLA, AHSCF and Brownfield Sites within four miles of Jaffe Wholesale Iron and Metal Company Site), February 20, 2000.

8. Alabama Department of Environmental Management, Federal Reporting Data System (FRDS-II), Public Water Supply Summary: Municipal Drinking Water Supplies serving the communities in the vicinity of Jaffe Wholesale Iron and Metal Company Site, Birmingham, Alabama.

9. Federal Emergency Management Agency: National Flood Insurance Program, FIRM: Flood Insurance Rate Map, City of Birmingham, Birmingham County, Alabama; Panel 0318 E; Map Number 01073C0318 E, Effective Date: January 20, 1999.

10. Hayes, Eugene C., Geological Survey of Alabama, 1978, 7-Day Low Flows and Flow Duration of Alabama Streams Through 1973. Geological Survey of Alabama Bulletin 113.

11. Alabama Department of Environmental Management; Water Division - Water Quality Program, 1993, Water Use Classification for Interstate and Intrastate Waters, Chapter 335-6-11.

REFERENCES (CONT.):

12. U.S. Fish and Wildlife Service, Alabama's Federally Listed "Endangered/Threatened Species, by County List," June 1999.

13. Federally Listed Endangered/Threatened Species by State, Alabama, June 15, 1999.

14. U.S. Fish and Wildlife Service, Endangered and Threatened Species of the Southeast United States (The Red Book). Prepared by Ecological Services, Division of Endangered Species, Southeast Region. Government Printing Office, Washington, D. C. (two volumes), 1992.

15. Teem, David H., et al., Alabama Agricultural Experiment Station, 1986, Vertebrate Animals of Alabama in Need of Special Attention.

16. Alabama State Data Center, Center for Business and Economic Research, College of Commerce and Business Administration, The University of Alabama. 1990 CENSUS Alabama Counties and Cities by Race.

17. U. S. EPA and U. S. Department of Commerce, LandView™ II, Mapping of Selected EPA-Regulated Sites TIGER/Line® 1992, and 1990 Census of Population and Housing.

18. Environmental Resources Management (ERM), Soil and Groundwater Data Sampling for the Former Jaffe Wholesale Iron and Metal Co. Site, Birmingham, Jefferson County, Alabama, May 20, 1999.

19. Ken Prestridge, John Glaze, Keevin Smith, and Paul I. Oyegbeda, Trip Report for Jaffe Wholesale Iron and Metal Company Site Birmingham, Alabama, 000009280762, Ref. No. 7077 Trip date: August 8th , 2000.

REFERENCE 1

OVERSIZED

DOCUMENT

Pathfinder Office

Release Notes

Version 2.11

Part Number 34195-11-ENG

January 1999

Revision A

Trimble Navigation Limited
Mapping & GIS Systems
645 North Mary Avenue
P.O. Box 3642
Sunnyvale, CA 94088-3642
U.S.A.

1-800-827-8000 in North America
+1-408-481-8000 International
Fax: +1-408-481-7744
www.trimble.com

REFERENCE 3

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

POST OFFICE BOX 301463 ♦ 1400 COLISEUM BLVD. 36110-2059
MONTGOMERY, ALABAMA 36130-1463
WWW.ADEM.STATE.AL.US
(334) 271-7700

JAMES W. WARR
DIRECTOR

DON SIEGELMAN
GOVERNOR

Facsimiles: (334)
Administration: 271-7950
General Counsel: 394-4332
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Mining: 394-4326
Education/Outreach: 394-4383

February 8, 2000

TRIP REPORT

TO: Jymalyn E. Redmond, Chief
Site Assessment Unit
Hazardous Waste Branch
Land Division

FROM: Paul I. Oyegbeda, ESII PIO
Program Support Unit
Hazardous Waste Branch
Land Division

SUBJECT: **Jaffe Wholesale Iron and Metal Co.**
2850 5th Avenue North
Birmingham, Jefferson County, AL 35203

On February 4th, 2000, Bonnie Temple, Clethes Stallworth, and Paul Oyegbeda, traveled to Jaffe Wholesale Iron and Metal Company (Jaffe), Birmingham in Jefferson County, Alabama for offsite/onsite reconnaissance. Mr. Jonathan R. Bonner, P.E. of the Environmental Resources Management (ERM) met us at the site and led us on a tour of the property. The property is located on 2850 5th Avenue North, Birmingham City, Jefferson County, Alabama.

Jaffe is comprised of 2 parcels. The Northern two-thirds is owned by the Kimerling Family, and the Southern third is owned by the Vickers. The Kimerling's property is approximately 6.61 acres, while the Vickers' property is approximately 3.31 acres. The site is currently vacant. The site is covered with mixed concrete and building debris, waste material, weeds and bushes. The property is not surrounded with a chain-linked fence. Evidence indicates that the property is used by trespassers.

A GPS reading of the site, and photographs were taken.

A trip to the Birmingham County Historical Library to obtain Sanborn Maps was made.

cc: Clethes Stallworth, Chief
Bonnie Temple

REFERENCE 4

REFERENCE 2

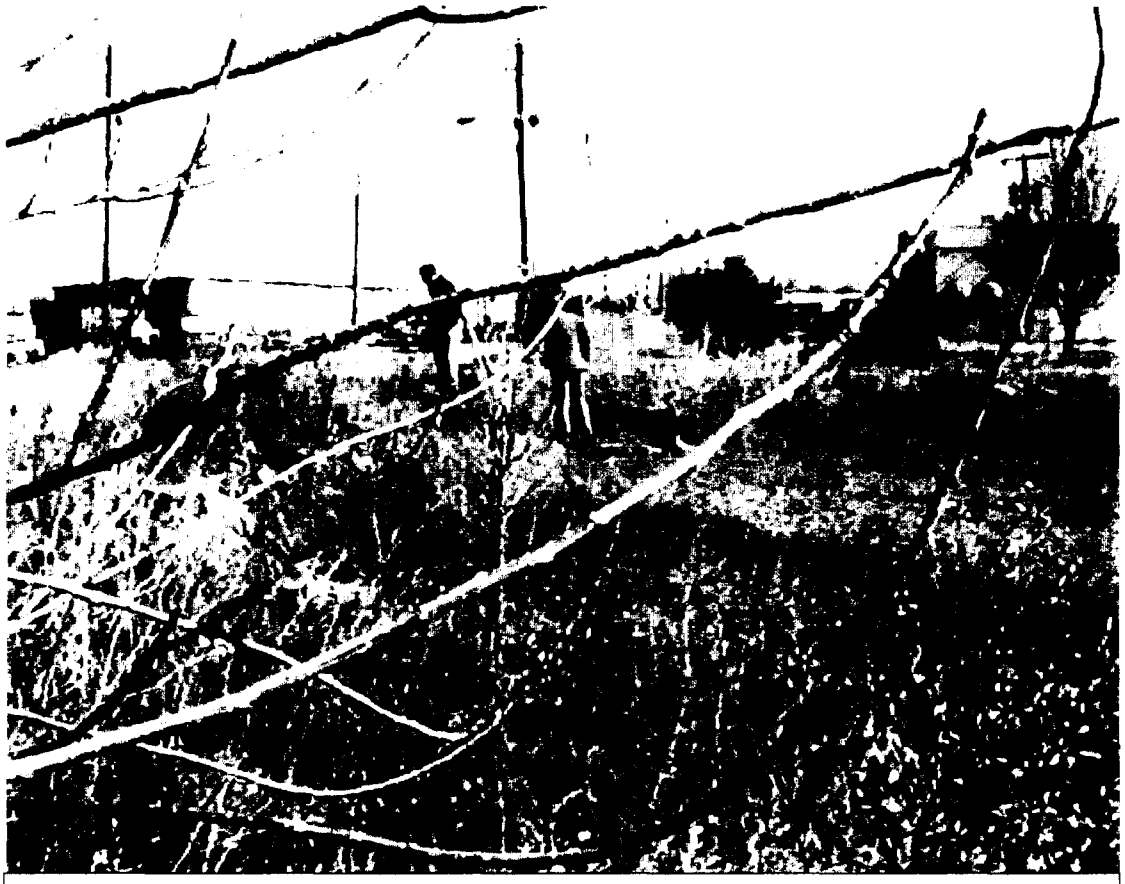
Jaffe photos panoramic-Looking to the South –Birmingham Hides and Tallow-Vickers' property

Jaffe photo panoramic to the North towards 5th Avenue North Kimerling's property looking from Vickers' property

Continuation of Jaffe photos panoramic looking towards East match the building

Jaffe photo showing dug hole in northwest section of property –Kimerling Family's property. Note white pail of clothing material

Jaffe photo showing concrete with dark coloration



Jaffe photo showing area currently covered with weeds, debris and a previously dug hole to the west

Jaffe photo showing concrete with a dark coloration

Jaffe photo showing mixed trash and debris

Jaffe photo showing pile of debris on Vickers' property at southern portion along 2nd Avenue North

Jaffe photo showing mixed broken bricks and debris

REFERENCE 5

LAND DIVISION-HAZARDOUS WASTE BRANCH-PROGRAM SUPPORT UNIT: TELEPHONE CONVERSATION RECORD.

Date:	January 25, 2000	Jaffe Wholesale Iron and Metal Company (Jaffe)
Time:	10:12 A.M. (He called)	
Conversation with:	Mr. Dennis Lewis	(205) 425-0015
Facility or Company.	Environmental Resource Management 1221 Greenwood Crossing Court, Suite101 Bessemer, AL 35022	
Regarding:	Jaffe Wholesale Iron and Metal Company	

1/25/2000 (10:12 A. M.) Dennis Lewis called me returning my call on the message I left on his voice mail. He wanted to know how soon we were coming to Birmingham for the site visit of Jaffe. I told him I will call to let him know the scheduled date and time for the site visit when we were ready.

P. I. Oyegbeda. PIO

LAND DIVISION-HAZARDOUS WASTE BRANCH-PROGRAM SUPPORT UNIT: TELEPHONE CONVERSATION RECORD.

Date:	January 4, 2000	Jaffe Wholesale Iron and Metal Company (Jaffe)
Time:	10:03 A. M (I called)	
Conversation with:	Mr. Dennis Lewis	(205) 425-0015
Facility or Company.	Environmental Resource Management 1121 Greenwood Crossing Court, Suite101 Bessemer, AL 35022	
Regarding:	Jaffe Wholesale Iron and Metal Company	

1/4/2000 (10:03 A. M.) I called Dennis Lewis. He was not in the office so, I left a message on his voice mail requesting him to return my call.

P. I. Oyegbeda. PIO

LAND DIVISION-HAZARDOUS WASTE BRANCH-PROGRAM SUPPORT UNIT: TELEPHONE CONVERSATION RECORD.

Date:	December 21, 1999	Jaffe Wholesale Iron and Metal Company (Jaffe)
Time:	9:55 A.M. & 10:16 A. M (I called)	
Conversation with:	Mr. Dennis Lewis	(205) 425-0015
Facility or Company.	Environmental Resource Management 1221 Greenwood Crossing Court, Suite101 Bessemer, AL 35022	
Regarding:	Jaffe Wholesale Iron and Metal Company	

12/21/99 (9:55 A. M. & 10:16) I called Dennis Lewis. He was not in the office so, I left a message on his voice mail requesting him to return my call.

P. I. Oyegbeda. PIO

REFERENCE 6

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
POST OFFICE BOX 301463 ♦ 1400 COLISEUM BLVD. 36110-2059
MONTGOMERY, ALABAMA 36130-1463
WWW.ADEM.STATE.AL.US
(334) 271-7700

JAMES W. WARR
DIRECTOR

DON SIEGELMAN
GOVERNOR

Facsimiles: (334)
Administration: 271-7950
General Counsel: 394-4332
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Mining: 394-4326
Education/Outreach: 394-4383

June 7, 2000

MEMORANDUM

TO: Stephen A. Cobb, Chief
Hazardous Waste Branch
Land Division

FROM: Joseph L. Gibson, Hydrogeologist
Groundwater Branch
Water Division

RE: Preliminary Assessment - Groundwater
Jaffe Wholesale Iron & Metal Company
Birmingham, Jefferson County, Alabama

The following groundwater report was prepared through a search of literature and information available to the Groundwater Branch. The author has not conducted a site reconnaissance and the findings in this report have not been field verified.

LOCATION

Jaffe Wholesale Iron and Metal Company is located in Birmingham, Jefferson County, Alabama (Figure 1). The United States Geological Survey's (USGS) 7.5 Minute Quadrangle Map entitled Birmingham North, Alabama shows the location of the site to be in the southwest ¼ of the southwest ¼ of Section 30 Township 17 South, Range 2 West (Figure 2). The latitude and longitude have been estimated to be 33° 31' 48" North Latitude and 86° 47' 40" West Longitude.

TOPOGRAPHY AND SURFACE WATER

The site is situated in eastern Jefferson County in what is considered to be the Birmingham – Big Canoe Valley District of the Alabama Valley and Ridge physiographic section. The surface elevations for the Birmingham – Big Canoe Valley District typically range from 500 to 600 feet above mean sea level (MSL) (Planert and Pritchett, 1989). The surface elevation at the site is approximately 600 feet MSL.

Surface water drainage from the site (Figure 3) is to the northeast into Cotton Mill Creek. Cotton Mill Creek flows approximately 1.5 miles to the north and enters Village Creek. Village Creek flows approximately 12.8 miles to the west and enters Bay View Lake. Bay View Lake comprises the remainder of the surface water pathway from the site. Cotton Mill Creek and Bay View Lake are not listed in the ADEM Admin. Code R. 335-6-11-.02 with a use classification; however, it is noted in the Regulations that segments not listed should be designated as Fish and Wildlife. Village Creek is listed in the ADEM Admin. Code R. 335-6-11-.02 with a use classification of Agriculture and Industrial from Bay View Lake to it's source. Low flow data was not available for Cotton Mill Creek and Village Creek (Hayes, 1978). No known surface water intakes for public drinking water supplies are located along the 15-mile surface water pathway from the site.

SOILS

The Soil Conservation Service (SCS) classifies soils at the site as Urban Land (Figure 4). The soils in this classification are made up of areas covered by commercial, industrial, and high-density residential facilities. These areas have been altered to a nearly level slope and have been changed by cutting, filling, and grading to the extent that the original surface soils are no longer recognizable (Spivey, 1982).

The closest soil unit to the site that is fully described by the SCS is the Decatur-Urban land complex, 2 to 8 percent slopes. These soils are most likely similar to the original soils found at the site. These soils are described by the SCS as gently sloping well-drained soils of urban land on uplands of limestone valleys. The surface layer typically is a dark reddish brown silt loam that is 7 inches thick, and a subsoil that is a dark red clay that is 65 inches thick. The permeability of these soils is moderate, and the surface runoff is moderately slow (Spivey, 1982).

GEOLOGY

Sedimentary rocks that range in age from Cambrian to Holocene underlie Jefferson County. Rocks in the northwestern half of the county have gentle dips and those in the southeastern half of the county are steeply dipping and overturned in many places as a result of folding and faulting. The gently dipping rocks in the Warrior basin are separated from the disturbed units in the Valley and Ridge by the Appalachian structural front, a tectonic zone situated along the northwestern edge of Birmingham Valley. The Alabama Valley and Ridge section consist of a series of northeast to southwest trending valley and ridges, and is composed of the Birmingham Valley, Cahaba Ridges, Cahaba Valley, and the Coosa Ridges (Hunter and Moser, 1990).

The site is located within the outcrop area of the Cambrian age Ketona Dolomite (Figure 5). The Ketona Dolomite ranges in thickness from 250 to 760 feet and consists of light-gray coarsely crystalline thick-bedded, mostly chert-free dolomite (Raymond, et al, 1988). Areas underlain by the Ketona Dolomite are susceptible to karst formation.

The axis of the Birmingham Anticline traverses approximately 1,500 feet to the south of the site and generally trends in a northeasterly to southwesterly direction. The axis of the Blount Mountain Syncline traverses approximately 1 mile to the northwest of the site and trends in a northeasterly to southwesterly direction. The Jones Valley Fault traverses across the southeast corner of the site and also trends in a northeasterly to southwesterly direction. The Opossum Valley Fault is located approximately 2 ¾ miles to the northwest of the site and also trends in a northeasterly to southwesterly direction. Both the Opossum Valley and the Jones Valley Faults are thrust faults. The structural features in the vicinity of the site (Figure 5) should enhance the fractured nature of the bedrock (Szabo, et al., 1979).

HYDROGEOLOGY

The site is located within the recharge area for the Valley and Ridge aquifer system (Moore, 1992). Szabo et al., 1979, noted that the water table in areas underlain by the Ketona Dolomite in Opossum and Jones Valleys can generally be found at 10 to 30 feet below ground surface. The Ketona Dolomite is a major producer of water in Jefferson County, and the availability of groundwater from this formation is generally concentrated in zones of secondary porosity e.g. in solution enlarged openings. Up to 390 gallons per minute may be obtained from wells that are successfully located within one of these solution-enlarged openings. The estimated porosity of the Cambrian and Ordovician carbonate rocks, including the Ketona, in the Valley and Ridge province is approximately 1.5 percent (Hunter and Moser, 1990).

There are no public water supply wells located within 4 miles of the site. The closest public water supply wells to site are wells operated by the City of Irondale. These wells are located approximately 5.1 miles to the northeast of the site. The site is not in a designated wellhead protection area, and no wellhead protection areas are located within four miles of the site. Domestic wells are not expected within the 4-mile radius of the site due to the urban nature of the site.

CLIMATE

The climate of Jefferson County is characterized as humid subtropical with hot summers, mild winters, and precipitation during all months of the year. The average annual temperature is approximately 62° with an average annual rainfall of approximately 54 inches. The average temperature in the in the summer is 79° and in the winter is 45° (Spivey, 1982). Approximately 22 inches of the 54 inches of rain per year runs off into the streams (Knight, 1976).

cc: Fred Mason, Chief, Hydrogeology Unit
Jymalyn Redmond, Chief, Site Assessment Unit
Paul Oyegbeda, Program Support Unit

SELECTED REFERENCES

Hunter, Jonathan A., and Moser, P. H., 1990, Ground-Water Availability in Jefferson County, Alabama: To Accompany Special Map 224: Geological Survey of Alabama.

Knight, Alfred L., 1976, Water Availability, Jefferson County, Alabama: Map 167: Geological Survey of Alabama.

Moore, James D., 1992, Aquifers in Alabama, Geological Survey of Alabama, Special Map 231.

Planert, Michael, and Pritchett, J. L. Jr., 1989, Geohydrology and Susceptibility of Major Aquifers to Surface Contamination in Alabama; Area 4, United States Geological Survey, Water Resources Investigation Report 88-4133.

Raymond, Dorothy E., Osborne, W. E., Copeland, C. W., Neathery, T. L., 1988, Alabama Stratigraphy: Circular 140: Geological Survey of Alabama

Spivey, Lawson D. Jr., 1982, Soil Survey of Jefferson County, Alabama; United States Department of Agriculture, Soil Conservation Service.

Szabo, Michael W., Beg, M. A., Rheams, L. J., Clarke, O. M. Jr., 1979, Engineering Geology of Jefferson County, Alabama: Atlas 14: Geological Survey of Alabama.

GROUNDWATER ROUTE WORKSHEET REQUIREMENTS

Route Characteristics

Aquifer of concern	Valley and Ridge aquifer system
Gross Precipitation	54 inches per year
Net Precipitation	6 inches (from HRS)
Depth to Aquifer	0 to 25 feet
Slope	Approximately 0 to 2 percent
Permeability of Unsaturated Zone	1.4×10^{-3} to 4.0×10^{-4} cm/sec.
Is the Site Susceptible to Karst	Yes

TARGETS

Groundwater use — There are no public water supply wells located within four miles of the site. Private water supply wells are not expected within the 4-mile radius of the site due to the industrial nature of the site.

Distance to nearest public water supply well – Approximately 5.1 miles.

Jaffe Wholesale Iron & Metal Company

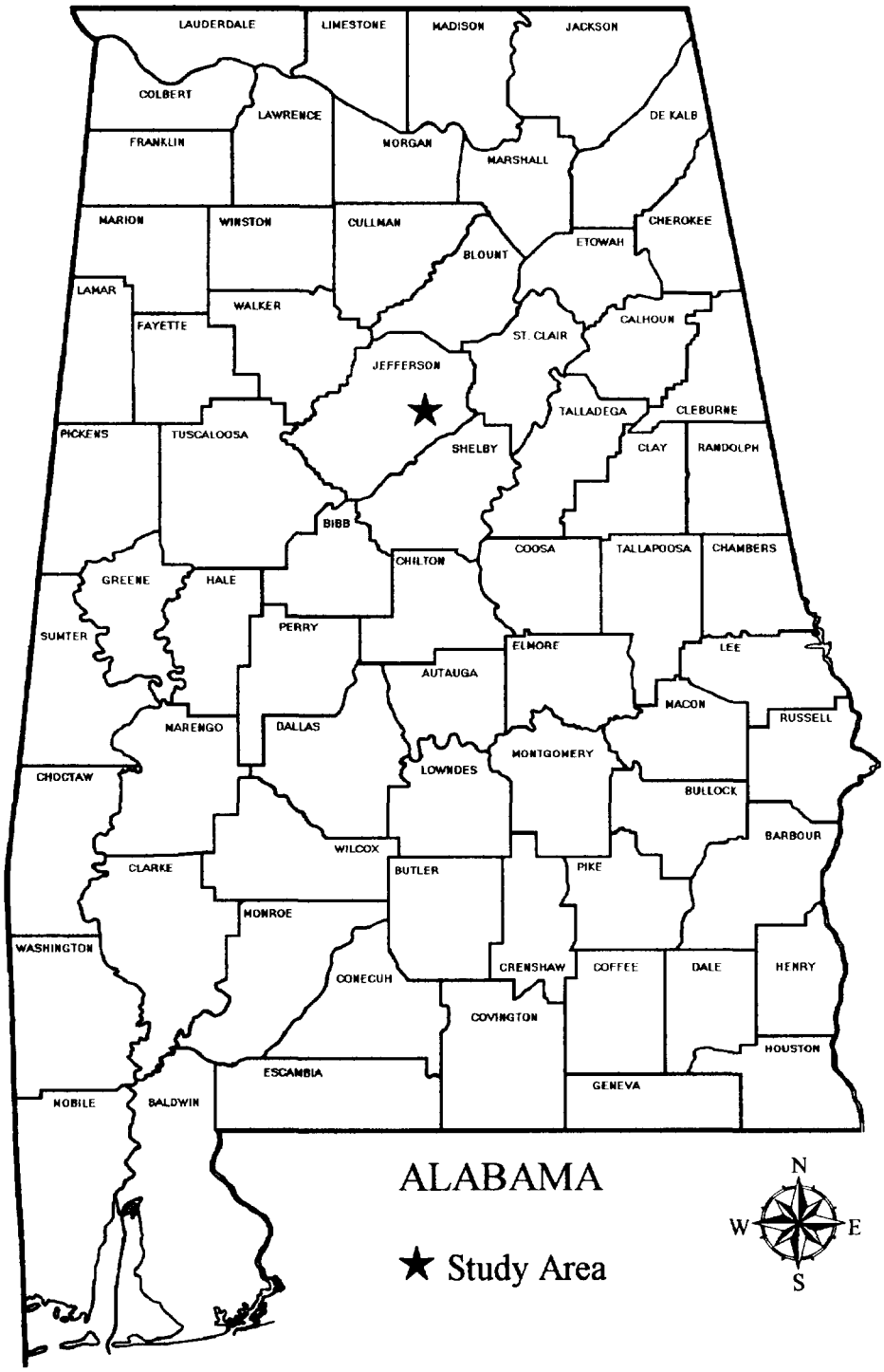


Figure 1

Site Location Map

Feet

0 1,000 2,000 4,000

N

W E

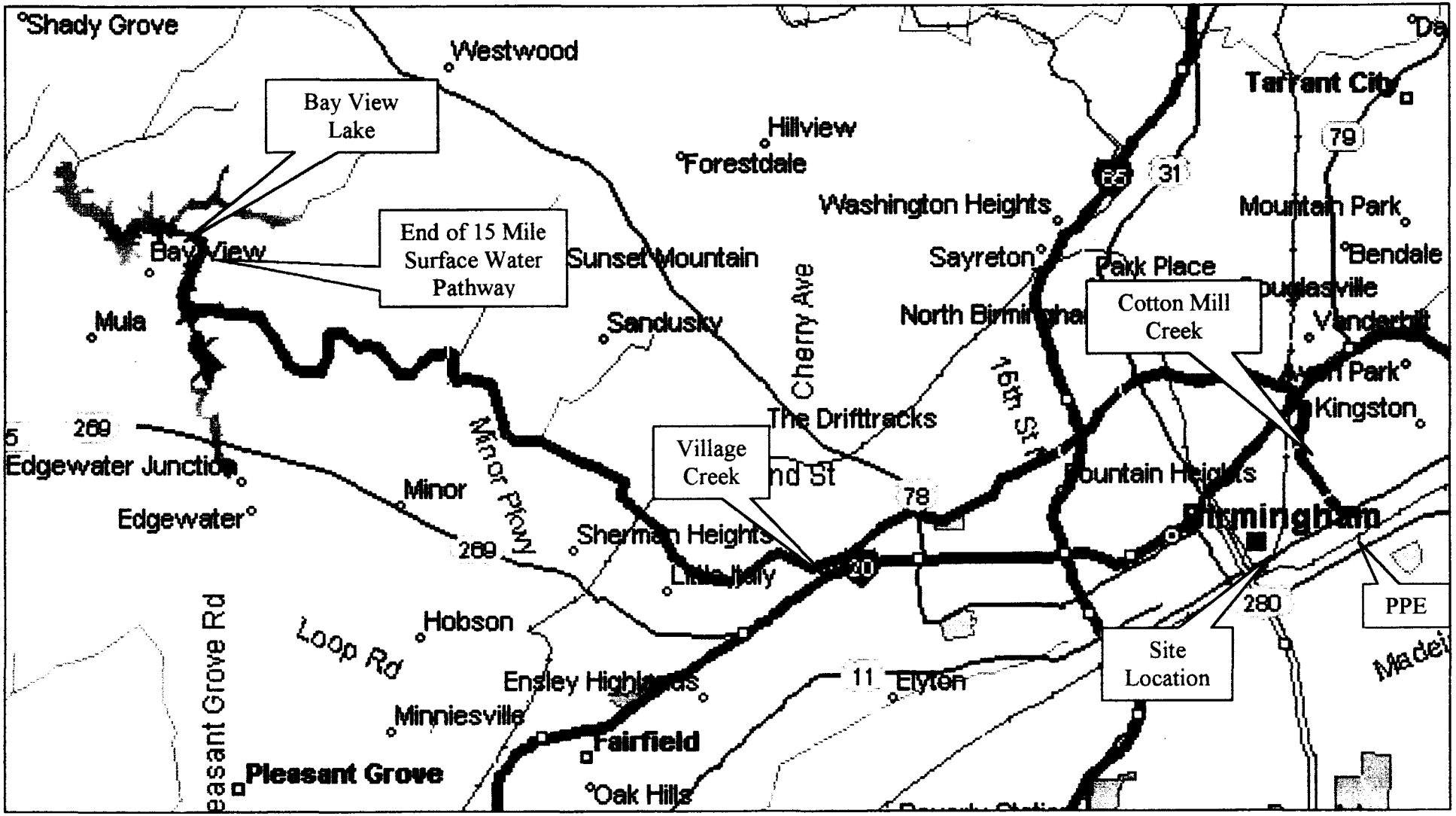
S

Jaffe Iron and Metal Company
Birmingham, Jefferson County, Alabama

Birmingham North, Alabama
U.S.G.S. Topographic Map

Figure 2

15-Mile Surface Water Pathway
Jaffe Wholesale Iron & Metal Company



Miles

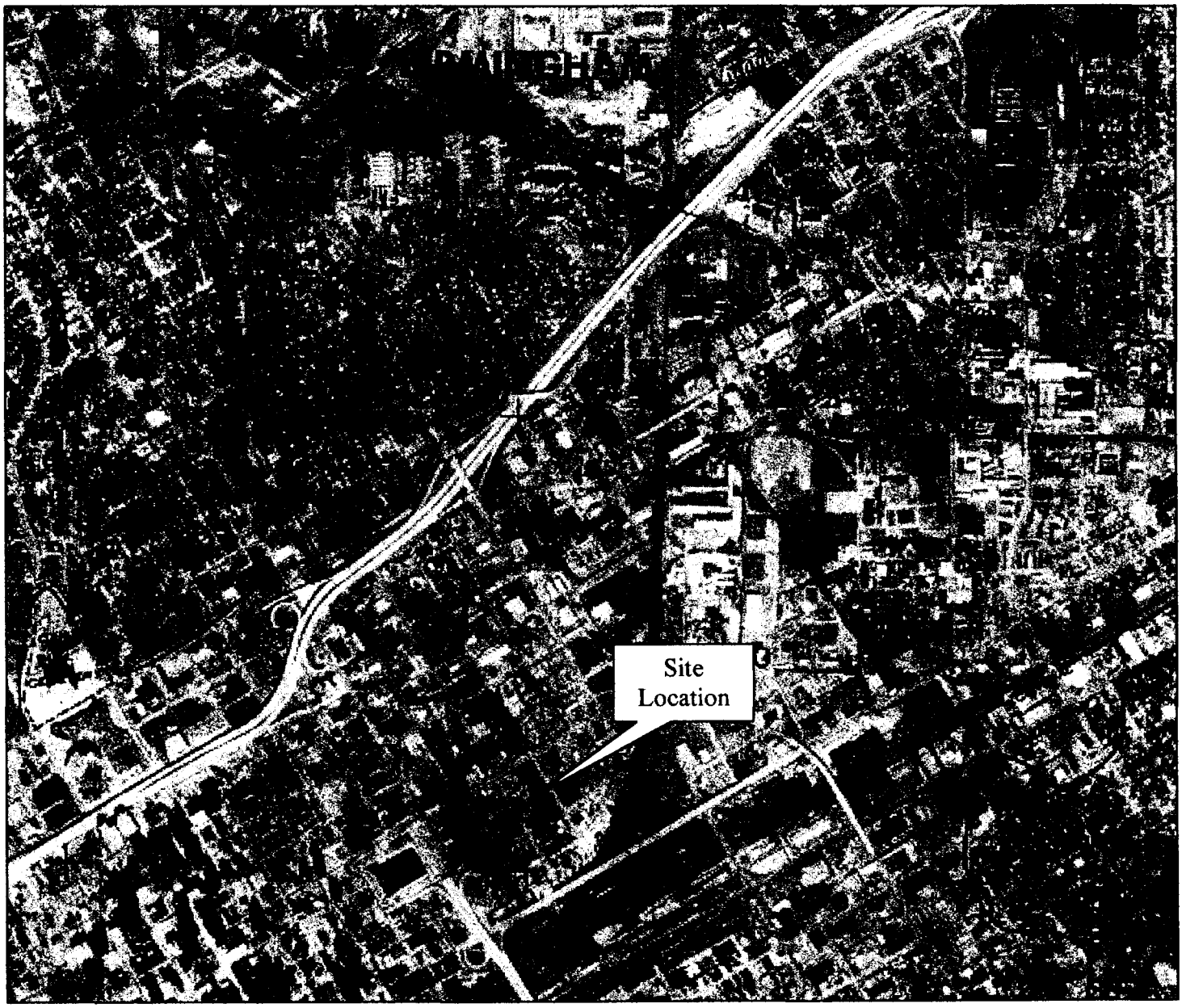
0 1 2 3

N W E S

Base Map – Streets 98
Microsoft Corporation 1988 - 1997

Figure 3

Soil Types Mapped at the Jaffe Wholesale Iron & Metal Company



12 - Decatur – Urban land complex 2 – 8 % slopes

44 - Urban land

Feet

0 1000 2000 3000 4000

N

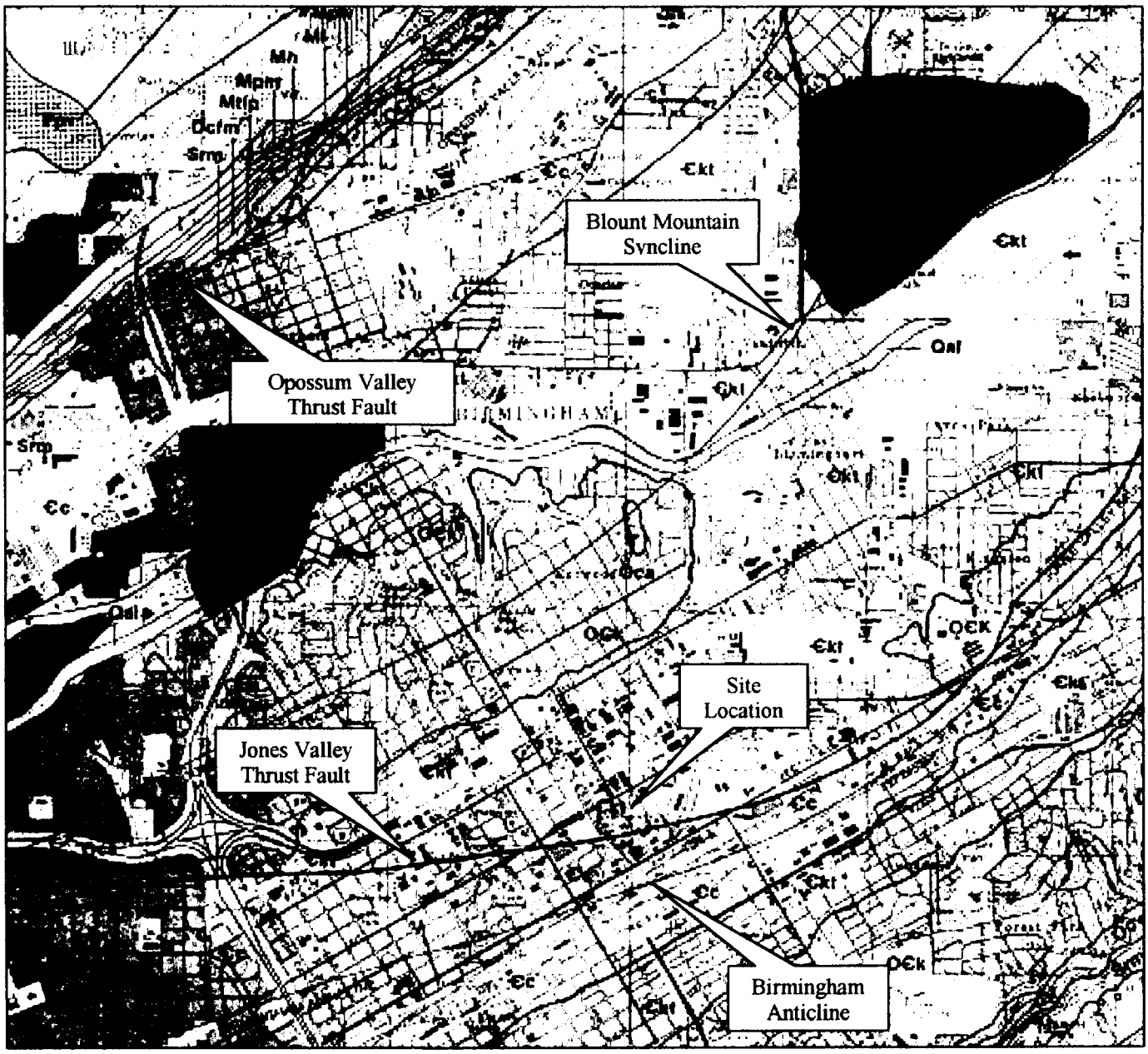
W E

S

U.S. Department of Agriculture
Soil conservation Service
Jefferson County, Alabama
Sheet # 12

Figure 4

Geologic Units and Structural Features Located Near the Jaffe Wholesale Iron & Metal Company Birmingham, Jefferson County, Alabama



OCk – Knox Group undifferentiated
Ckt - Ketona Dolomite
Cc - Conassauga Formation

Feet
0 2,000 4,000 6,000

North

ENGINEERING GEOLOGY OF THE BIRMINGHAM NORTH QUADRANGLE, ALABAMA
BY
M. W. Szabo, M. A. Beg, and L. J. Rheams
1979

Figure 5

REFERENCE 8

WORKSTATION 74-09844:pio

3:57:17 pm Tuesday March 14, 2000

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**********************************************************************
****          1         2         3         4         5         6         7
**** 12345678901234567890123456789012345678901234567890123456789012345678901
**********************************************************************
*  *
* 1*  List PWS SUMMARY                                  Choose by cursor positic
* 2*
* 3*                  ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
* 4*                     Federal Reporting Data System  (FRDS-II)
* 5*
* 6*                                                                PWS     ACTI
* 7*       PWS ID                    SYSTEM NAME                    TYPE      FI
* 8*  ¤  AL 0000738  BIRMINGHAM WATER BOARD                          C         A
* 9*  ¤  AL 0001195  BIRMINGHAM PRESBYTERY CAMP                      N         I
*10*
* 1*
* 2*
* 3*
* 4*
* 5*
* 6*
* 7*
* 8*
* 9*
*20*  Enter) Display                10) ADDRESS DATA    / ON SITE VISIT    15
* 1*  2) Mark / Clear   6) Add      11) STATE DISCRETIONARY / VIOLATION DATA
* 2*                    7) Query    12) SOURCE ENTITY / ENFORCEMENT DATA   16
* 3*                                13) GEOGRAPHIC AREA / PROJECTS
* 4*                    9) Modify   14) SERVICE AREAS   / TOTALS
*  *
**********************************************************************
****          1         2         3         4         5         6         7
**** 12345678901234567890123456789012345678901234567890123456789012345678901
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WORKSTATION 74-09844:pio

 3:57:37 pm     Tuesday        March 14, 2000


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**********************************************************************************
*  *
* 1*  Display PWS SUMMARY
* 2*
* 3*  PWS ID: AL 0000738 PWS TYPE: C (C,N,P) SAMPLING PLAN: Y (Y,N)
* 4*  ACTIVITY FLAG:  A (A or I)    SYSTEM BEGIN-YY:  75     SYSTEM BEGIN-MM:
* 5*  DEACT-YY:     00       DEACT-MM:   00       POPULATION SERVED:  600,000
* 6*  PCT SURFACE: 100  PCT GROUND:  000  PCT PUR SURFACE: 000  PCT PUR GROUN
* 7*  SYSTEM NAME:          BIRMINGHAM WATER BOARD
* 8*  RESPONSIBLE PERSON:  MR. JOEL RHALY, PLANT MANAGER
* 9*  ADDRESS (ST/BOX):    P O BOX 830110
*10*  CITY: BIRMINGHAM                                  STATE: AL  ZIP: 35283
* 1*  PRIMARY PHONE:   205 251 3261     EMERGENCY PHONE:    205
* 2*  SERVICE CONNECTIONS:  200,000          OWNER TYPE:    4     AC PIPE:
* 3*  REGULATING ENTITY: S (F=Federal S=State B=Both N=Neither)  CROSS CONNEC
* 4*  SEASON BEGIN-MM: 00 SEASON BEGIN-DD: 00 SEASON END-MM: 00  SEASON END-D
* 5*  REQUIRED COMPLIANCE SAMPLES: 0210   REQUIRED RAW SAMPLES: 0004
* 6*  LAB ID:    30010    LAB NAME: Birmingham Water Works Laboratory
* 7*  TURBIDITY MONITORING REQUIRED: Y (Y OR N)   USER: TSD  DATE: 02/22/00
* 8*  FLOURIDE MONITORING REQUIRED:  Y (Y OR N)   TIME:  10:21:24.61
* 9*
*20*                                10) ADDRESS DATA    / ON SITE VISIT    15
* 1*                    6) Add      11) STATE DISCRETIO / VIOLATION DATA
* 2*  3) Down                       12) SOURCE ENTITY I / ENFORCEMENT DAT  16
* 3*                                13) GEOGRAPHIC AREA / PROJECTS
* 4*  5) Next / Last    9) Modify   14) SERVICE AREAS   / TOTALS
*  *
**********************************************************************************
****          1         2         3         4         5         6         7
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WORKSTATION 74-09844:pio

3:58:15 pm Tuesday March 14, 2000

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*  *
* 1*  List SOURCE ENTITY INFO                          Choose by cursor positic
* 2*
* 3*                    ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
* 4*                       Federal Reporting Data System  (FRDS-II)
* 5*                      SE                                                  S
* 6*       PWS ID2        ID                          NAME                    CC
* 7*  ¤  AL 0000738      001       LAKE PURDY (PUTNAM)                        S
* 8*  ¤  AL 0000738      002       CAHABA RIVER (SHADES MTN.)                 S
* 9*  ¤  AL 0000738      003       SMITH LAKE (WESTERN)                       S
*10*  ¤  AL 0000738      004       INLAND LAKE (CARSON)                       S
* 1*
* 2*
* 3*
* 4*
* 5*
* 6*
* 7*
* 8*
* 9*
*20*  Enter) Display                 10) PWS SUMMARY                          15
* 1*  2) Mark / Clear    6) Add      11) TREATMENT DATA
* 2*                     7) Query    12) TOTALS                               16
* 3*                                 13) SOURCE CHEMICAL MONITORING          / E
* 4*                     9) Modify
*  *
**********************************************************************
****          1         2         3         4         5         6         7
**** 12345678901234567890123456789012345678901234567890123456789012345678901
**********************************************************************
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WORKSTATION 74-09844:pio

3:58:51 pm Tuesday March 14, 2000

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* 1*  List PWS SUMMARY                                Choose by cursor positic
* 2*
* 3*                  ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
* 4*                     Federal Reporting Data System  (FRDS-II)
* 5*
* 6*                                                              PWS     ACTI
* 7*       PWS ID                    SYSTEM NAME                 TYPE       FI
* 8*  ¤  AL 0000738  BIRMINGHAM WATER BOARD                       C         A
* 9*
*10*
* 1*
* 2*
* 3*
* 4*
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* 6*
* 7*
* 8*
* 9*
*20*  Enter) Display                 10) ADDRESS DATA    / ON SITE VISIT    19
* 1*  2) Mark / Clear   6) Add       11) STATE DISCRETIONARY / VIOLATION DATA
* 2*                    7) Query     12) SOURCE ENTITY / ENFORCEMENT DATA   16
* 3*                                 13) GEOGRAPHIC AREA / PROJECTS
* 4*                    9) Modify    14) SERVICE AREAS   / TOTALS
*  *
**********************************************************************
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WORKSTATION 74-09844:pio

3:59:32 pm Tuesday March 14, 2000

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**********************************************************************************
*  *
* 1*  List STATE DISCRETIONARY                                  Choose by cursor positic
* 2*
* 3*                    ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
* 4*                       Federal Reporting Data System  (FRDS-II)
* 5*
* 6*                     SERVICE      AVERAGE       MAXIMUM        DESIGN
* 7*        PWS ID       METERS     PRODUCTION    PRODUCTION     CAPACITY
* 8*  ¤   AL 0000738      200,000   112,400,000   130,000,000   189,320,000
* 9*
*10*
* 1*
* 2*
* 3*
* 4*
* 5*
* 6*
* 7*
* 8*
* 9*
*20*  Enter) Display                10) PWS SUMMARY                              15
* 1*  2) Mark / Clear   6) Add
* 2*                     7) Query                                               16
* 3*                                                                           / E
* 4*                     9) Modify
*  *
**********************************************************************************
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**********************************************************************************
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WORKSTATION 74-09844:pio

4:01:34 pm Tuesday March 14, 2000

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**********************************************************************************
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**** 12345678901234567890123456789012345678901234567890123456789012345678901234
**********************************************************************************
*  *
* 1*  Display TOTALS
* 2*
* 3*      ACTIVE COMMUNITY SOURCES                                COMMUNITY POPUL
* 4*   TOTAL GROUND NONPURCHASED:   1,026                           25 -   500:
* 5*   TOTAL SURFACE NONPURCHASED:     92                          501 -  1000:
* 6*   TOTAL GROUND PURCHASED:        248                         1001 -  1500:
* 7*   TOTAL SURFACE PURCHASED:       274                         1501 -  3300:
* 8*   TOTAL GROUND UNDER DIRECT INFLUENCE: 8                      3301 -  5000:
* 9*   TOTAL GROUND PURCHASED UNDER DIRECT INFLUENCE: 0            5001 - 10000:
*10*                                                             10001 - 25000:
* 1*     COMMUNITY       NONCOMMUNITY       NONTRANSIENT        25001 - 50000:
* 2*  TOTAL NE    141  TOTAL NE     25  TOTAL NE      7           OVER  50000:
* 3*  TOTAL NW    128  TOTAL NW     13  TOTAL NW      8
* 4*  TOTAL SE    169  TOTAL SE     22  TOTAL SE     12         TOTAL POPULATIC
* 5*  TOTAL SW    141  TOTAL SW     33  TOTAL SW     15          COMMUNITY SYST
* 6*                                                                  4,889,9
* 7*  TOTAL:       579  TOTAL:       93  TOTAL:       42
* 8*
* 9*
*20*                                                                        15
* 1*
* 2*  3) Down                                                             16
* 3*
* 4*
*  *
**********************************************************************************
****          1         2         3         4         5         6         7
**** 12345678901234567890123456789012345678901234567890123456789012345678901234
**********************************************************************************
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WORKSTATION 74-09844:pio

4:01:51 pm Tuesday March 14, 2000

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**********************************************************************************
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**** 12345678901234567890123456789012345678901234567890123456789012345678901234567890
**********************************************************************************
*  *
* 1*  Display TOTALS
* 2*
* 3*                ACTIVE AND INACTIVE VIOLATION TOTALS BY FISCAL YEAR
* 4*  COMMUNITY            16  NONCOMMUNITY           7 NONTRANSIENT
* 5*
* 6*              ACTIVE AND INACTIVE VIOLATION FOR CURRENT FISCAL YEAR
* 7*
* 8*       COMMUNITY  MCL VIOLATIONS                   COMMUNITY M & R VIOLAT
* 9*     CHEMICAL:                  0                CHEMICAL:
*10*     TURBIDITY:                 0                TURBIDITY:
* 1*     BACTERIOLOGICAL:           4                BACTERIOLOGICAL:
* 2*     RADIOLOGICAL:              0                RADIOLOGICAL:
* 3*
* 4*     NON-COMMUNITY MCL VIOLATIONS                NON-COMMUNITY M & R VIOI
* 5*     CHEMICAL:                  0                CHEMICAL:
* 6*     TURBIDITY:                 0                TURBIDITY:
* 7*     BACTERIOLOGICAL:           0                BACTERIOLOGICAL:
* 8*     RADIOLOGICAL:              0                RADIOLOGICAL:
* 9*
*20*                                                                        15
* 1*  2) Up
* 2*  3) Down                                                               16
* 3*
* 4*
*  *
**********************************************************************************
****          1         2         3         4         5         6         7
**** 12345678901234567890123456789012345678901234567890123456789012345678901234567890
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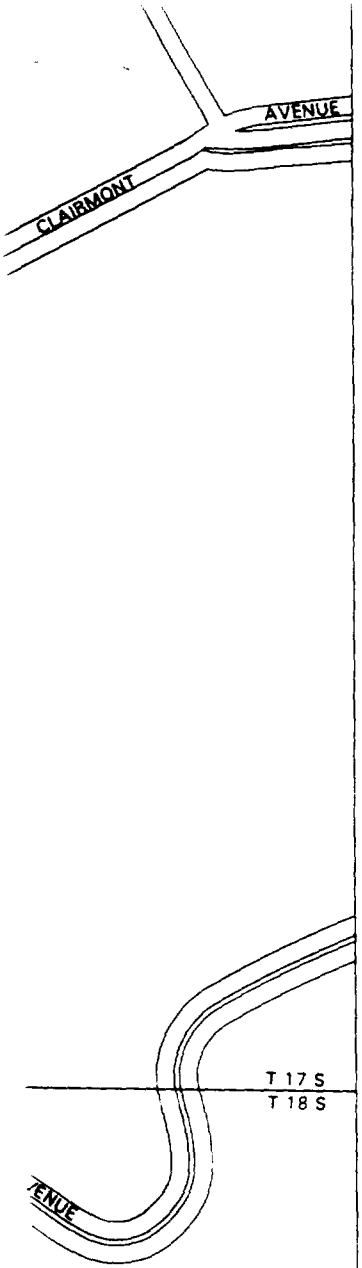
REFERENCE 9



To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at (800) 638-6620.

APPROXIMATE SCALE

500 0 500 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

JEFFERSON COUNTY, ALABAMA AND INCORPORATED AREAS

PANEL 318 OF 660

(SEE MAP INDEX FOR PANELS NOT PRINTED)

CONTAINS:

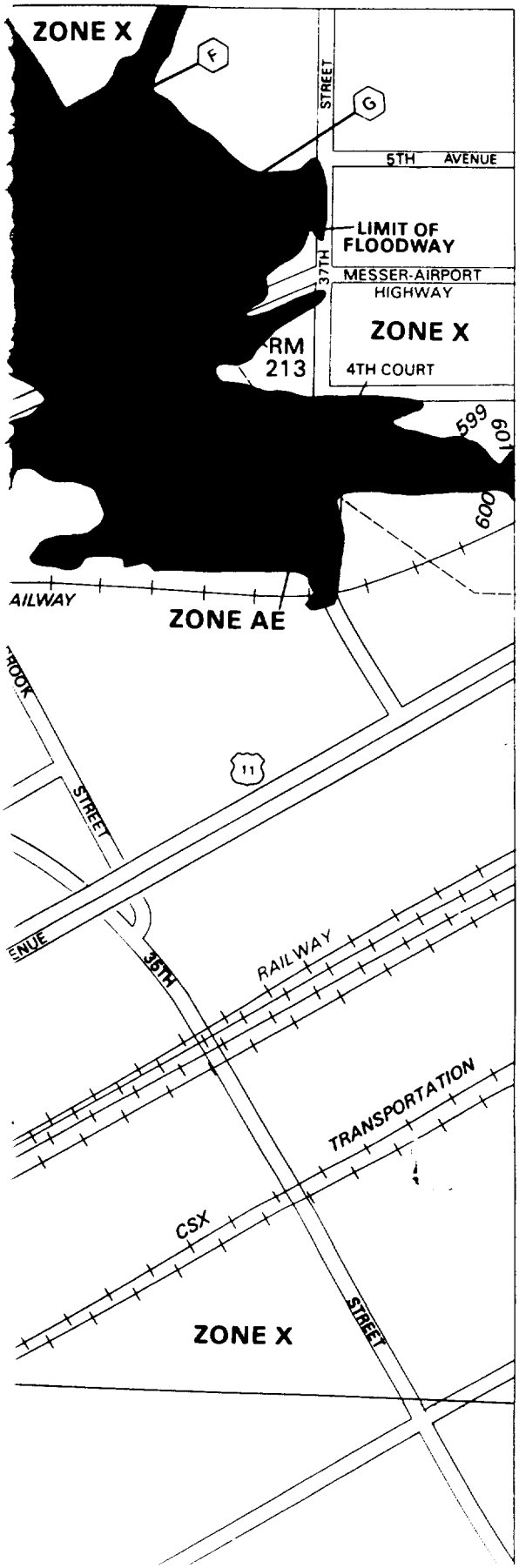
COMMUNITY	NUMBER	PANEL	SUFFIX
BIRMINGHAM, CITY OF	010116	0318	E

Notice To User: The MAP NUMBER shown below should be used when placing map orders; the COMMUNITY NUMBER shown above should be used on insurance applications for the subject community.

MAP NUMBER
01073C0318 E

EFFECTIVE DATE:
JANUARY 20, 1999

Federal Emergency Management Agency



LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

ZONE A No base flood elevations determined.

ZONE AE Base flood elevations determined.

ZONE AH Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.

ZONE AO Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding; velocities also determined.

ZONE A99 To be protected from 100-year flood by Federal flood protection system under construction; no base flood elevations determined.

ZONE V Coastal flood with velocity hazard (wave action); no base flood elevations determined.

ZONE VE Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

ZONE X Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

ZONE X Areas determined to be outside 500-year floodplain.

ZONE D Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS†

Identified 1983

Identified 1990 or Later

Otherwise Protected Areas Identified 1991 or Later

†Coastal barrier areas are normally located within or adjacent to special flood hazard areas.

Floodplain Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zones.

513 — Base Flood Elevation Line; Elevation in Feet*

D — D — Cross Section Line

(EL 987) — Base Flood Elevation in Feet Where Uniform Within Zone*

$RM7_X$ — Elevation Reference Mark

•M1.5 — River Mile

*Referenced to the National Geodetic Vertical Datum of 1929

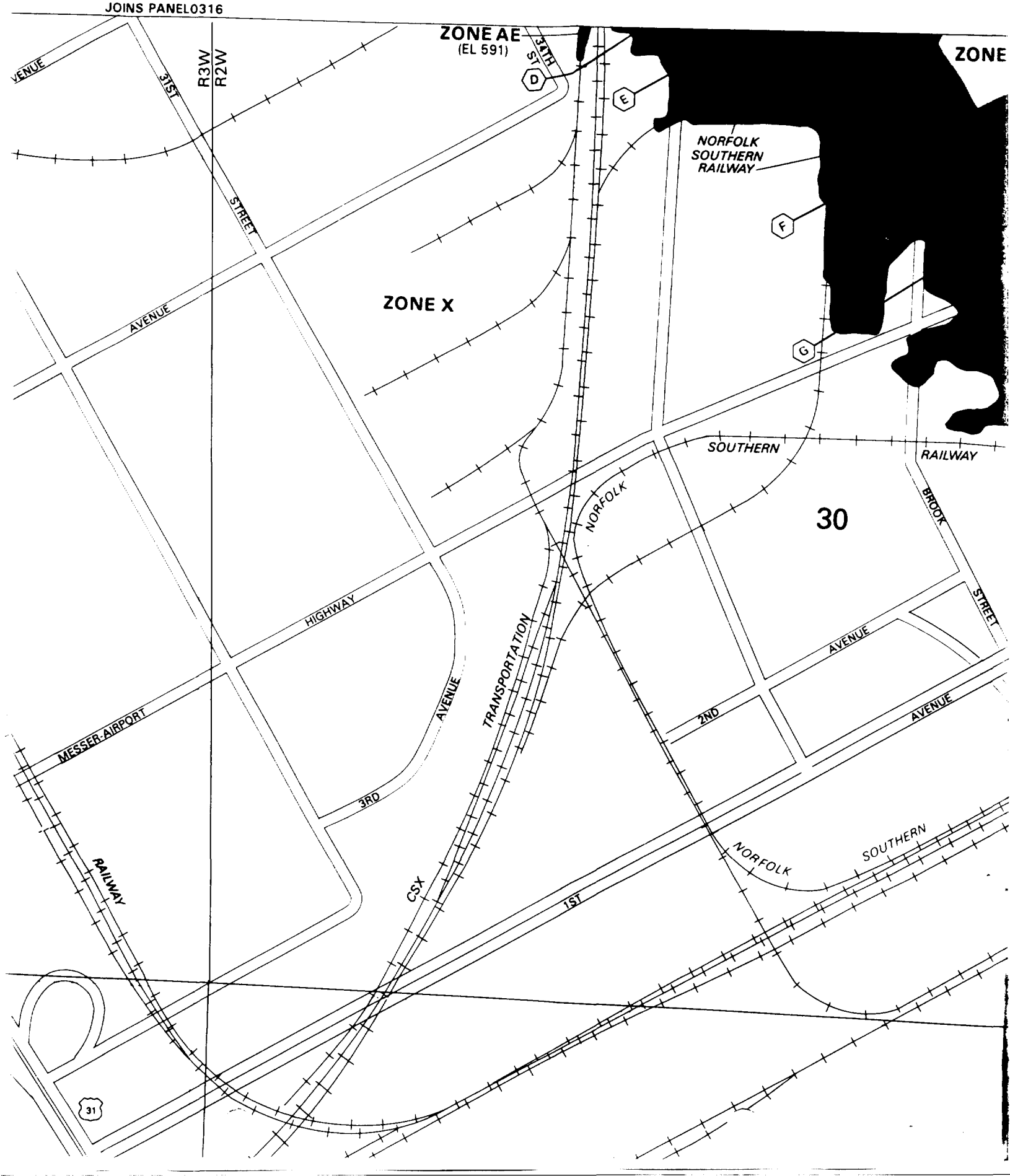
NOTES

This map is for use in administering the National Flood Insurance Program; it does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size, or all planimetric features outside Special Flood Hazard Areas. The community map repository should be consulted for possible updated flood hazard information prior to use of this map for property purchase or construction purposes.

Coastal base flood elevations apply only landward of 0.0 NGVD, and include the effects of wave action; these elevations may also differ significantly from those developed by the National Weather Service for hurricane evacuation planning.

Areas of special flood hazard (100-year flood) include Zones A, AE, AH, AO, A99, V, and VE.

Certain areas not in Special Flood Hazard Areas may be protected by flood control structures.


JOINS PANEL0316
ZONE AE
(EL 591)
ZONE
ZONE X
NORFOLK
SOUTHERN
RAILWAY
SOUTHERN
RAILWAY
30
R3W
R2W
31ST
STREET
AVENUE
HIGHWAY
MESSER-AIRPORT
AVENUE
3RD
RAILWAY
TRANSPORTATION
CSX
NORFOLK
1ST
NORFOLK
SOUTHERN
2ND
AVENUE
AVENUE
BROOK
STREET
D
E
F
G
31

REFERENCE 10

GEOLOGICAL SURVEY OF ALABAMA

Thomas J. Joiner
State Geologist

DIVISION OF WATER RESOURCES

Henry C. Barksdale
Chief

BULLETIN 113

7-DAY LOW FLOWS AND FLOW DURATION OF ALABAMA STREAMS THROUGH 1973

By

Eugene C. Hayes

Prepared by
United States Geological Survey
in cooperation with
Geological Survey of Alabama

University, Alabama
1978

Table 2.—*7-day low flows at gaging stations*—Continued

Station no.	Stream and locality	Drainage area (sq mi)	Period of record (climatic years)	7-day average flow of period, in cfs, and year of occurrence	Estimated 10-year 7-day low flow in cfs and cfsm	Estimated 2-year 7-day low flow in cfs and cfsm	Location of gaging station
02452500	Sipsey Fork near Sipsey, Ala.	994	1930-37	23.7 (1931)	23 .023	45 .045	In NE¼ sec. 33, T. 13 S., R. 5 W., at former Drummonds Ferry, 200 ft downstream from Lieth Creek, and 3½ miles northeast of Sipsey, Walker County.
02453000	Blackwater Creek near Manchester, Ala.	188	1940-71	1.7 (1964)	3.8 .020	9.8 .052	In SE¼ sec. 15, T. 13 S., R. 7 W., at County Highway Bridge, 2 miles east of Manchester, Walker County.
02453500	Mulberry Fork near Cordova, Ala.	1,927	1902-12	28 (1904)	37 .019	87 .045	In NW¼ sec. 9, T. 15 S., R. 6 W., at St. Louis-San Francisco Railway Bridge, just downstream from Cane Creek, and 1 mile east of Cordova, Walker County.
02454000	Lost Creek near Oakman, Ala.	130	1953-66	0.0 (1953)	0.0	0.6 .005	In SE¼ sec. 3, T. 15 S., R. 8 W., at State Highway 69, quarter of a mile upstream from Wolf Branch, and 4 miles northeast of Oakman, Walker County.
02454200	Wolf Creek near Oakman, Ala.	89.1	1961-69	0.0 (1962) (1963) (1965)	0.0	0.1 .001	In NW¼ sec. 9, T. 16 S., R. 8 W., at State Highway 69, 3 miles south of Oakman, Walker County, and 9 miles upstream from Indian Creek.
02454420	Cove Spring near Walnut Grove, Ala.		1970-73	1.5 (1972)	—	—	In SW¼SW¼NE¼ sec. 6, T. 11 S., R. 4 E., tributary to Little Cove Creek, 3.9 mi northeast of Walnut Grove, Etowah County.
02454500	Locust Fork below Snead, Ala.	147	1954-57	3.0 (1954) (1955)	3.2 .022	6.6 .045	In SE¼ sec. 25, T. 10 S., R. 2 E., at State Highway 75, half a mile downstream from Mud Creek, and 2¼ miles northwest of Snead, Blount County.
02455000	Locust Fork near Cleveland, Ala.	309	1938-73	2.8 (1954)	5.1 .017	11 .036	In NE¼ sec. 6, T. 12 S., R. 1 E., at U. S. Highway 231, 2 miles north of Cleveland, Blount County, and 2½ miles downstream from Graves Creek.
02455500	Locust Fork at Trafford, Ala.	625	1932-69	10.8 (1954)	15[1] .024	27[1] .043	In SW¼ sec. 9, T. 14 S., R. 2 W., at County Highway Bridge, three-quarters of a mile northwest of Trafford, Jefferson County, and 2¾ miles upstream from Gurley Creek.
02456000	Turkey Creek at Morris, Ala.	81.5	1945-73	9.2 (1956)	10 .123	12 .147	In SW¼ sec. 12, T. 15 S., R. 3 W., at former U. S. Highway 31, at Morris, Jefferson County, and 4 miles upstream from mouth.
02456500	Locust Fork at Sayre, Ala.	887	1930-32 1943-73	19.9 (1931)	27[1] .030	48[1] .054	In NW¼ sec. 29, T. 15 S., R. 4 W., at County Highway Bridge at Sayre, Jefferson County, and 1½ miles downstream from Camp Creek.
02457000	Fivemile Creek at Ketona, Ala.	22.8	1955-58	5.4 (1954)	—[20]	8 .351	In NW¼ sec. 33, T. 16 S., R. 2 W., quarter of a mile downstream from State Highway 79, at Ketona, Jefferson County, and 0.6 mi downstream from Barton Branch.
02460500	Village Creek near Adamsville, Ala.	84.1	1955-58	0.0 (1954-56)	—[21]	—[21]	In E½ sec. 36, T. 16 S., R. 5 W., at County Highway Bridge, quarter of a mile upstream from Canoe Creek, and 3.5 miles west of Adamsville, Jefferson County

02454420	Cove Spring near Walnut Grove, Ala.		1970-73	1.5 (1972)	—	—	In SW¼SW¼NE¼ sec. 6, T. 11 S., R. 4 E., tributary to Little Cove Creek, 3.9 mi northeast of Walnut Grove, Etowah County.
02454500	Locust Fork below Snead, Ala.	147	1954-57	3.0 (1954) (1955)	3.2 .022	6.6 .045	In SE¼ sec. 25, T. 10 S., R. 2 E., at State Highway 75, half a mile downstream from Mud Creek, and 2¼ miles northwest of Snead, Blount County.
02455000	Locust Fork near Cleveland, Ala.	309	1938-73	2.8 (1954)	5.1 .017	11 .036	In NE¼ sec. 6, T. 12 S., R. 1 E., at U. S. Highway 231, 2 miles north of Cleveland, Blount County, and 2½ miles downstream from Graves Creek.
02455500	Locust Fork at Trafford, Ala.	625	1932-69	10.8 (1954)	15[1] .024	27[1] .043	In SW¼ sec. 9, T. 14 S., R. 2 W., at County Highway Bridge, three-quarters of a mile northwest of Trafford, Jefferson County, and 2¾ miles upstream from Gurley Creek.
02456000	Turkey Creek at Morris, Ala.	81.5	1945-73	9.2 (1956)	10 .123	12 .147	In SW¼ sec. 12, T. 15 S., R. 3 W., at former U. S. Highway 31, at Morris, Jefferson County, and 4 miles upstream from mouth.
02456500	Locust Fork at Sayre, Ala.	887	1930-32 1943-73	19.9 (1931)	27[1] .030	48[1] .054	In NW¼ sec. 29, T. 15 S., R. 4 W., at County Highway Bridge at Sayre, Jefferson County, and 1½ miles downstream from Camp Creek.
02457000	Fivemile Creek at Ketona, Ala.	22.8	1955-58	5.4 (1954)	—[20]	8 .351	In NW¼ sec. 33, T. 16 S., R. 2 W., quarter of a mile downstream from State Highway 79, at Ketona, Jefferson County, and 0.6 mi downstream from Barton Branch.
02460500	Village Creek near Adamsville, Ala.	84.1	1955-58	0.0 (1954-56)	—[21]	—[21]	In E½ sec. 36, T. 16 S., R. 5 W., at County Highway Bridge, quarter of a mile upstream from Canoe Creek, and 3.5 miles west of Adamsville, Jefferson County.

REFERENCE 12

ALABAMA'S FEDERALLY LISTED SPECIES (BY COUNTY)

Date of List: June 1999

This office (Daphne Field Office - USFWS) is currently updating this list and, therefore, it may be incomplete and is provided strictly for informational purposes, at this time, and does not constitute any form of Section 7 consultation. We recommend that this office is contacted for updated, site specific information prior to project activities. To be certain of occurrence, surveys should be conducted by qualified biologists to determine if a federally protected species occurs within a project area.

Key to codes on list:
E - Endangered
T - Threatened
CH - Critical Habitat Designated
C - Candidate Species
PT - Proposed Threatened
PE - Proposed Endangered
(P) - Possible Occurrence

Autauga	E -	Wood stork *Mycteria americana*
	E -	Alabama canebrake pitcher plant *Sarracenia rubra alabamensis*
	T -	Price's potato bean *Apios priceana*
Baldwin	ECH -	Alabama beach mouse *Peromyscus polionotus ammobates*
	ECH -	Perdido Key beach mouse *Peromyscus polionotus trissylepsis*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Piping plover *Charadrius melodus*
	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Alabama red-bellied turtle *Pseudemys alabamensis*
	T -	Loggerhead sea turtle *Caretta caretta*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	T -	Flatwoods salamander *Ambystoma cingulatum* (P)
	T -	Green sea turtle *Chelonia mydas* (P)
	E -	Kemp's ridley *Lepidochelys kempii* (P)
	T -	Eastern indigo snake *Drymarchon corais couperi* (P)
Barbour	E -	Wood stork *Mycteria americana*
Bibb	E -	Red-cockaded woodpecker *Picoides borealis*
	E -	Cahaba shiner *Notropis cahabae*
	T -	Goldline darter *Percina aurolineata*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*

	T -	Inflated heelsplitter mussel *Potamilus inflatus*
Bibb (cont)	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Cylindrical lioplax snail *Lioplax cyclostomaformis*
	E -	Flat pebblesnail *Lepyrium showalteri*
	T -	Round rocksnail *Leptoxis ampla*
	T -	Mohr's barbara's buttons *Marshallia mohrii*
	E -	Tennessee yellow-eyed grass *Xyris tennessensis*
Blount	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Plicate rocksnail *Leptoxis plicata*
	T -	Eggert's sunflower *Helianthus eggertii*
	E -	Cahaba shiner *Notropis cahabae*
Bullock	E -	Relict trillium *Trillium reliquum*
	T -	Eastern indigo snake *Drymarchon corais couperi* (P)
Butler	T -	Red hills salamander *Phaeognathus hubrichti*
Calhoun	E -	Gray bat *Myotis grisescens*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Pygmy sculpin *Cottus pygmaeus*
	T -	Blue shiner *Cyprinella caerulea*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Tulotoma snail *Tulotoma magnifica*
	T -	Painted rocksnail *Leptoxis taeniata*
	E -	Southern pigtoe mussel *Pleurobema georgianum*
	E -	Tennessee yellow-eyed grass *Xyris tennessensis*
	T -	Mohr's Barbara's buttons *Marshallia mohrii*
Chambers	T -	Little amphianthus *Amphianthus pusillus*
Cherokee	T -	Bald eagle *Haliaeetus leucocephalus*
	T -	Blue shiner *Cyprinella caerulea*
	E -	Coosa moccasinshell mussel *Medionidus parvulus*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Southern acornshell mussel *Epioblasma othcaloogensis*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Southern pigtoe mussel *Pleurobema georgianum*
	E -	Upland combshell mussel *Epioblasma metastriata*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
	E -	Green pitcher plant *Sarracenia oreophila*

	E -	Harperella *Ptilimnium nodosum*
Cherokee(cont)	T -	Mohr's Barbara's buttons *Marshallia mohrii*
	E -	Alabama leather flower *Clematis socialis*
Chilton	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Alabama canebrake pitcher plant *Sarracenia rubra alabamensis*
	T -	Painted rocksnail *Leptoxis taeniata*
Choctaw	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Wood stork *Mycteria americana*
	T -	Gopher tortoise *Gopherus polyphemus*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
Clarke	E -	Wood stork *Mycteria americana*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
Clay	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
Cleburne	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Fine-lined pocketbook *Lampsilis altilis*
	E -	Southern pigtoe mussel *Pleurobema georgianum*
Coffee	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
Colbert	E -	Gray bat *Myotis grisescens*
	E -	"bats" *Myotis* sp.
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	White warty-back pearly mussel *Plethobasus cicatricosus*
	E -	Rough pigtoe pearly mussel *Pleurobema plenum*
	E -	Cumberlandian combshell mussel *Epioblasma brevidens*
	E -	Ring pink mussel *Obovaria retusa*
	T -	Lyrate bladder-pod *Lesquerella lyrata*
	E -	Spotfin chub *Cyprinella* (=*Hybopsis*) *monacha*
Conecuh	E -	Gray bat *Myotis grisescens*
	T -	Red hills salamander *Phaeognathus hubrichti*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Eastern indigo snake *Drymarchon corais couperi* (P)

Coosa	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Bald eagle *Haliaeetus leucocephalus*
Coosa (cont)	T -	Blue shiner *Cyprinella caerulea*
	T -	Tulotoma snail *Tulotoma magnifica*
Covington	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Eastern indigo snake *Drymarchon corais couperi*
	T -	Red hills salamander *Phaeognathus hubrichti*
	T -	Flatwoods salamander *Ambystoma cingulatum* (P)
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
Crenshaw	T -	Red hills salamander *Phaeognathus hubrichti*
Cullman	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
Dale		
Dallas	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Wood stork *Mycteria americana*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
DeKalb	E -	Gray bat *Myotis grisescens*
	E -	"bats" *Myotis* sp.
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	T -	Kral's water-plantain *Sagittaria secundifolia*
	E -	Green pitcher plant *Sarracenia oreophila*
	E -	Harperella *Ptilimnium nodosum*
	T -	Blue shiner *Cyprinella caerulea*
Elmore	E -	Tulotoma snail *Tulotoma magnifica*
	E -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Alabama canebrake pitcher plant *Sarracenia rubra alabamensis*
Escambia	E -	Wood stork *Mycteria americana*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	T -	Eastern indigo snake *Drymarchon corais couperi* (P)

Etowah	T -	Flattened musk turtle *Sternotherus depressus*
	T -	Mohr's Barbara's buttons *Marshallia mohrii*
	E -	Green pitcher plant *Sarracenia oreophila*
	E -	Alabama leather flower *Clematis socialis*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
Etowah (cont)	E -	Southern clubshell mussel *Pleurobema decisum*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	E -	Southern combshell mussel *Epioblasma penita*
	E -	Southern pigtoe mussel *Pleurobema georgianum*
Fayette	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	E -	Dark pigtoe mussel *Pleurobema furvum*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
Franklin	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Turgid blossom pearlymussel *Epioblasma turgidula*
	T -	Lyrate bladder-pod *Lesquerella lyrata*
	E -	Leafy prairie clover *Dalea foliosa*
	E -	Tennessee yellow-eyed grass *Xyris tennessensis*
Geneva	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Eastern indigo snake *Drymarchon corais couperi* (P)
Greene	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	E -	Stirrup shell mussel *Quadrula stapes*
Hale	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
Henry	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Relict trillium *Trillium reliquum*
Houston	T -	Flatwoods salamander *Ambystoma cingulatum* (P)
Jackson	E -	Gray bat *Myotis grisescens*
	E -	Indiana bat *Myotis sodalis*

	E -	"bats" *Myotis* sp.
	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Palezone shiner *Notropis* sp. cf. *procne*
	E -	Anthony's riversnail *Athearnia anthonyi*
	E -	Shiny pigtoe pearly mussel *Fusconaia cor (edgariana)*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	Alabama lamp pearly mussel *Lampsilis virescens*
Jackson(cont)	E -	Pale lilliput pearly mussel *Toxolasma cylindrellus*
	E -	Fine-rayed pigtoe mussel *Fusconaia cuneolus*
	E -	Green pitcher plant *Sarracenia oreophila*
	T -	American hart's-tongue fern *Phyllitis scolopendrium* var.*americanum*
Jefferson	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Watercress darter *Etheostoma nuchale*
	E -	Cahaba shiner *Notropis cahabae*
	E -	Upland combshell mussel *Epioblasma metastriata*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	E -	Plicate rocksnail *Leptoxis plicata*
	E -	Leafy prairie clover *Dalea foliosa*
Lamar	E -	Southern combshell mussel *Epioblasma penita*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
Lauderdale	E -	Gray bat *Myotis grisescens*
	T -	Bald eagle *Haliaeetus leucocephalus*
	TCH -	Slackwater darter *Etheostoma boschungi*
	ECH -	Alabama cavefish *Speoplatyrhinus poulsoni*
	E -	Spotfin chub *Cyprinella (=Hybopsis) monacha*
	E -	Ring pink mussel *Obovaria retusa*
	E -	Turgid blossom pearlymussel *Epioblasma turgidula*
	E -	Cracking pearlymussel *Hemistena lata*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	White warty-back pearly mussel *Plethobasus cicatricosus*
	E -	Rough pigtoe pearly mussel *Pleurobema plenum*
Lawrence	E -	Gray bat *Myotis grisescens*
	E -	Indiana bat *Myotis sodalis*
	E -	Red-cockaded woodpecker *Picoides borealis*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*

	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	E -	Dark pigtoe mussel *Pleurobema furvum*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	E -	Rough pigtoe mussel *Pleurobema plenum*
	E -	Leafy prairie clover *Dalea foliosa*
	E -	Lyrate bladder-pod *Lesquerella lyrata*
Lee	E -	Relict trillium *Trillium reliquum*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
Limestone	E -	Gray bat *Myotis grisescens*
	E -	"bats" *Myotis* sp.
	E -	Anthony's riversnail *Athearnia anthonyi*
	T -	Slackwater darter *Etheostoma boschungi*
	E -	Boulder darter *Etheostoma wapiti*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	Rough pigtoe mussel *Pleurobema plenum*
	E -	Cumberland monkeyface mussel *Quadrula intermedia*
	PE -	Slender campeloma snail *Campeloma decampi*
	PE -	Armored snail *Pyrgulopsis pachyta*
Lowndes	E -	Wood stork *Mycteria americana*
Macon	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
Madison	E -	Gray bat *Myotis grisescens*
	T -	Bald eagle *Haliaeetus leucocephalus*
	T -	Slackwater darter *Etheostoma boschungi*
	E -	Snail darter *Percina tanasi*
	E -	Alabama cave shrimp *Palaemonias alabamae*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	Shiny pigtoe pearly mussel *Fusconaia cor (edgariana)*
	E -	Fine-rayed pigtoe mussel *Fusconaia cuneolus*
	E -	Rough pigtoe mussel *Pleurobema plenum*
	E -	Orange-footed pearly mussel *Plethobasus cooperianus*
	T -	Price's potato bean *Apios priceana*
	E -	Morefield's leather flower *Clematis morefieldii*

Marengo	T -	Inflated heelsplitter mussel *Potamilus inflatus*
Marion	E -	Southern combshell mussel *Epioblasma penita*
Marshall	E -	Red-cockaded woodpecker *Picoides borealis*
	E -	Gray bat *Myotis grisescens*
	E -	Indiana bat *Myotis sodalis*
	E -	"bats" *Myotis* sp.
	T -	Bald eagle *Haliaeetus leucocephalus*
	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Snail darter *Percina tanasi*
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	Shiny pigtoe pearly mussel *Fusconaia cor (edgariana)*
Marshall(cont)	E -	Fine-rayed pigtoe mussel *Fusconaia cuneolus*
	E -	Orange-footed pimpleback mussel *Plethobasus cooperianus*
	E -	Rough pigtoe *mussel Pleurobema plenum*
	T -	Price's potato bean *Apios priceana*
	E -	Green pitcher plant *Sarracenia oreophila*
Mobile	T -	Piping plover *Charadrius melodus*
	T -	Eastern indigo snake *Drymarchon corais couperi*
	T -	Gopher tortoise *Gopherus polyphemus*
	E -	Alabama red-bellied turtle *Pseudemys alabamensis*
	T -	Loggerhead sea turtle *Caretta caretta*
	E -	Leatherback sea turtle *Dermochelys coriacea*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
	E -	Kemp's ridley *Lepidochelys kempii* (P)
	T -	Green sea turtle *Chelonia mydas* (P)
	T -	Flatwoods salamander *Ambystoma cingulatum* (P)
	E -	Louisiana quillwort *Isoetes louisianensis* (P)
Monroe	T -	Red hills salamander *Phaeognathus hubrichti*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
Montgomery	E -	Wood stork *Mycteria americana*
Morgan	E -	Gray bat *Myotis grisescens*
	E -	Indiana bat *Myotis sodalis*
	E -	"bats" *Myotis* sp.
	E -	Pink mucket pearly mussel *Lampsilis orbiculata*
	E -	Rough pigtoe *mussel Pleurobema plenum*

	E -	Leafy prairie clover *Dalea foliosa*
	T -	American hart's-tongue fern *Phyllitis scolopendrium* var. *americanum*
Perry	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Red-cockaded woodpecker *Picoides borealis*
	E -	Cahaba shiner *Notropis cahabae*
Pickens	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Heavy pigtoe mussel *Pleurobema taitianum*
	E -	Stirrup shell mussel *Quadrula stapes*
Pike		
Randolph	T -	Little amphianthus *Amphianthus pusillus*
Russell	E -	Shiny-rayed pocketbook mussel *Lampsilis subangulata*
	E -	Red-cockaded woodpecker *Picoides borealis*
Shelby	E -	Gray bat *Myotis grisescens*
	E -	Indiana bat *Myotis sodalis*
	E -	Cahaba shiner *Notropis cahabae*
	T -	Goldline darter *Percina aurolineata*
	T -	Painted rocksnail *Leptoxis taeniata*
	E -	Tulotoma snail *Tulotoma magnifica*
	E -	Southern acornshell mussel *Epioblasma othcaloogensis*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*
	T -	Alabama moccasinshell mussel *Medionidus acutissimus*
	E -	Cylindrical lioplax (snail) *Lioplax cyclostomaformis*
	E -	Flat pebblesnail *Lepyrium showalteri*
	T -	Round rocksnail *Leptoxis ampla*
St. Clair	E -	Tulotoma snail *Tulotoma magnifica*
	E -	Southern acornshell mussel *Epioblasma othcaloogensis*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Southern pigtoe mussel *Pleurobema georgianum*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Upland combshell mussel *Epioblasma metastriata*
	E -	Alabama leather flower *Clematis socialis*

Sumter	E -	Ovate clubshell mussel *Pleurobema perovatum*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	E -	Stirrup shell mussel *Quadrula stapes*
	T -	Gopher tortoise *Gopherus polyphemus*
Talladega	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
	E -	Coosa moccasinshell mussel *Medionidus parvulus*
	E -	Tulotoma snail *Tulotoma magnifica*
	T -	Painted rocksnail *Leptoxis taeniata*
	T -	Lacy elimia (snail) *Elimia crenatella*
Tallapoosa	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
Tuscaloosa	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Southern clubshell mussel *Pleurobema decisum*
	E -	Dark pigtoe mussel *Pleurobema furvum*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
Tuscaloosa (cont)	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
Walker	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Ovate clubshell mussel *Pleurobema perovatum*
	E -	Triangular kidneyshell mussel *Ptychobranchus greeni*
	T -	Fine-lined pocketbook mussel *Lampsilis altilis*
Washington	E -	Wood stork *Mycteria americana*
	T -	Eastern indigo snake *Drymarchon corais couperi*
	T -	Gopher tortoise *Gopherus polyphemus*
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
	T -	Inflated heelsplitter mussel *Potamilus inflatus*
	E -	Louisiana quillwort *Isoetes louisianensis* (P)
Wilcox	T -	Bald eagle *Haliaeetus leucocephalus*
	E -	Wood stork *Mycteria americana* (P)
	T -	Gulf sturgeon *Acipenser oxyrinchus desotoi*
	PE -	Alabama sturgeon *Scaphirhynchus suttkusi*
Winston	T -	Flattened musk turtle *Sternotherus depressus*
	E -	Red-cockaded woodpecker *Picoides borealis*
	T -	Orange-nacre mucket mussel *Lampsilis perovalis*

T - Alabama moccasinshell mussel *Medionidus acutissimus*
E - Coosa moccasinshell mussel *Medionidus parvulus*
E - Dark pigtoe mussel *Pleurobema furvum*
E - Triangular kidneyshell mussel *Ptychobranchus greeni*
T - Fine-lined pocketbook mussel *Lampsilis altilis*
T - Kral's water-plantain *Sagittaria secundifolia*
T - Alabama streak-sorus fern *Thelypteris pilosa* var. *alabamensis*

Notes:

- Bald eagle *Haliaeetus leucocephalus*, red-cockaded woodpecker *Picoides borealis* and the American peregrine falcon *Falco peregrinus anatum* may occur in any county, if habitat exists.
- Wood stork / July - October
- Bald eagle / Wintering birds possible in areas with reservoirs or rivers.

REFERENCE 13

ALABAMA

FEDERALLY LISTED ENDANGERED / THREATENED SPECIES

current as of 15 June 1999

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
Mammals		(See note on bottom of page 7)	
(7)	E	Red wolf* *Canis rufus*	Extirpated
	E	Florida panther* *Felis concolor coryi*	Extirpated
	E	Gray bat *Myotis grisescens*	Tennessee Valley, Shelby and Conecuh Counties
	E CH	Indiana bat *Myotis sodalis*	Tennessee Valley, Jackson County
	E CH	Alabama beach mouse *Peromyscus polionotus ammobates*	Coastal, Baldwin county
	E CH	Perdido Key beach mouse *Peromyscus polionotus trissyllepsis*	Coastal, Baldwin county
	E CH	West Indian (Florida) manatee *Trichechus manatus*	Coastal waters
Birds			
(8)	E	Ivory-billed woodpecker* *Campephilus principalis*	Extirpated
	T	Piping Plover *Charadrius melodus*	Coastal beaches and islands
	E CH	American peregrine falcon *Falco peregrinus anatum*	Statewide
	T	Bald Eagle *Haliaeetus leucocephalus*	Statewide
	E	Wood stork	Statewide

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
		Mycteria americana	
	E	Eskimo curlew *Numenius borealis*	Possible migrant
	E	Red-cockaded woodpecker *Picoides borealis*	Statewide
	E	Bachman's warbler* *Vermivora bachmanii*	Probably extirpated
Reptiles (10)	T (SA)	American Alligator *Alligator mississippiensis*	Southern half of the state
	T	Loggerhead sea turtle *Caretta caretta*	Coastal waters, nests on Alabama beaches
	T	Green sea turtle *Chelonia mydas*	Coastal waters, nests on Alabama beaches
	E CH	Leatherback sea turtle *Dermochelys coriacea*	Coastal waters
	T	Eastern indigo snake *Drymarchon corais couperi*	Extreme southern counties
	E CH	Hawksbill sea turtle *Eretmochelys imbricata*	Coastal waters
	T	Gopher tortoise *Gopherus polyphemus*	Choctaw, Mobile, and Washington Counties (western population only is listed)
	E	Kemp's (Atlantic) Ridley sea turtle *Lepidochelys kempii*	Coastal waters
	E	Alabama red-bellied turtle *Pseudemys alabamensis*	Mobile, Baldwin, and Monroe Counties
	T	Flattened musk turtle *Sternotherus depressus*	Upper Black Warrior River system

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
Amphibians (2)	T	Flatwoods salamander* *Ambystoma cingulatum*	Probably extirpated
	T	Red Hills salamander *Phaeognathus hubrichti*	Butler, Crenshaw, Conecuh, Covington and Monroe Counties
Fish (12)	T	Gulf sturgeon *Acipenser oxyrhynchus desotoi*	Alabama, Mobile, Conecuh and Choctawhatchee Rivers
	T	Pygmy sculpin *Cottus pygmaeus*	Calhoun County
	T	Blue shiner *Cyprinella caerulea*	Coosa River: Cherokee, Calhoun, Talladega, Coosa Counties
	T CH	Spotfin chub *Cyprinella monacha*	Tennessee River: Lauderdale and Colbert Counties
	T CH	Slackwater darter *Etheostoma boschungi*	Tennessee River: Madison, Lauderdale, and Limestone Counties
	E	Watercress darter *Etheostoma nuchale*	Jefferson County
	E	Boulder darter *Etheostoma wapiti*	Elk River: Limestone County
	E	Cahaba shiner *Notropis cahabae*	Cahaba River: Bibb County
	E	Palezone shiner *Notropis albizonatus*	Paint Rock River: Jackson County
	T	Goldline darter *Percina aurolineata*	Cahaba River system: Bibb and Shelby Counties
	T	Snail darter *Percina tanasi*	Paint Rock River: Jackson County
	E CH	Alabama cavefish	Lauderdale County

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
		Speoplatyrhinus poulsoni	
Mussels (39)	E	Fanshell mussel *Cyprogenia stegaria*	Tennessee River
	E	Dromedary pearly mussel *Dromus dromas*	Tennessee River
	E	Cumberlandian combshell *Epioblasma brevidens*	Tennessee River
	E	Oyster mussel *Epioblasma capsaeformis*	Tennessee River
	E	Yellow-blossom pearly mussel *Epioblasma florentina florentina*	Tennessee River
	E	Upland combshell mussel *Epioblasma metastriata*	Black Warrior, Cahaba and Coosa River drainages
	E	Purple cat's paw pearly mussel *Epioblasma obliquata obliquata*	Tennessee River
	E	Southern acornshell mussel *Epioblasma othcaloogenesis*	Upper Coosa and Cahaba River drainages
	E	Southern combshell mussel *Epioblasma penita*	Tombigbee River, Buttahatchie River
	E	Tubercled-blossom pearly mussel* *Epioblasma torulosa torulosa*	Tennessee River
	E	Turgid-blossom pearly mussel *Epioblasma turgidula*	Tennessee River
	E	Fine-rayed pigtoe mussel *Fusconaia cuneolus*	Paint Rock River
	E	Shiny pigtoe mussel *Fusconaia cor* (=*edgariana*)	Paint Rock River

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
	E	Cracking pearly mussel *Hemistena lata*	Tennessee River
	T	Fine-lined pocketbook mussel *Lampsilis altilis*	Coosa, Tallapoosa, and Cahaba drainages
	E	Pink mucket pearly mussel *Lampsilis abrupta*	Tennessee River, Paint Rock River
	T	Orange-nacre mucket *Lampsilis perovalis*	Tombigbee, Black Warrior, Alabama, and Cahaba drainages
	E	Shinyrayed pocketbook *Lampsilis subangulata*	Uchee Creek, Russell County
	E	Alabama lamp pearly mussel *Lampsilis virescens*	Paint Rock River, Hurricane Creek
	T	Alabama moccasinshell mussel *Medionidus acutissimus*	Alabama, Tombigbee, Cahaba, Coosa, Black Warrior drainages
	E	Coosa moccasinshell mussel *Medionidus parvulus*	Coosa, Cahaba, and Black Warrior drainages
	E	Ring pink mussel *Obovaria retusa*	Tennessee River
	E	Little-wing pearly mussel *Pegias fabula*	Tennessee River
	E	White wartyback pearly mussel *Plethobasus cicatricosus*	Tennessee River
	E	Orange-footed pearly mussel *Plethobasus cooperianus*	Tennessee River
	E	Clubshell* *Pleurobema clava*	Tennessee River drainage
	E	Black clubshell mussel* *Pleurobema curtum*	Extirpated
	E	Southern clubshell mussel	Tombigbee, Black Warrior,

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
		Pleurobema decisum	Alabama, Tallapoosa and Coosa drainages
	E	Dark pigtoe mussel *Pleurobema furvum*	Sipsey Fork and North River drainages of Black Warrior River drainage
	E	Southern pigtoe mussel *Pleurobema georgianum*	Coosa River drainage
	E	Flat pigtoe mussel *Pleurobema marshalli*	Tombigbee River
	E	Ovate clubshell mussel *Pleurobema perovatum*	Tombigbee, Black Warrior, Alabama, Tallapoosa and Coosa drainages
	E	Rough pigtoe mussel *Pleurobema plenum*	Tennessee River
	E	Heavy pigtoe mussel *Pleurobema taitianum*	Tombigbee and Sipsey Rivers
	T	Inflated heelsplitter mussel *Potamilus inflatus*	Black Warrior and Tombigbee Rivers
	E	Triangular kidneyshell mussel *Ptychobranchus greeni*	Black Warrior, Cahaba, and Coosa River drainages
	E	Cumberland monkeyface pearly mussel *Quadrula intermedia*	Tennessee River
	E	Stirrup shell mussel *Quadrula stapes*	Tombigbee River, Sipsey River
	E	Pale lilliput pearly mussel *Toxolasma cylindrellus*	Paint Rock River, Hurricane Creek
Snails (8)	E	Anthony's riversnail *Anthearnia anthonyi*	Limestone Creek and Tennessee River: Limestone County
	T	Lacy elimia *Elimia crenatella*	Coosa River drainage: Talladega, Chilton and Calhoun Counties
	T	Round rocksnail	Cahaba River drainage: Bibb and

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
		Leptoxis ampla	Shelby Counties
	E	Plicate rocksnail *Leptoxis plicata*	Locust Fork River: Jefferson County
	T	Painted rocksnail *Leptoxis taeniata*	Coosa River drainage: Talladega, Chilton and Calhoun Counties
	E	Flat pebblesnail *Lepyrium showalteri*	Cahaba River drainage: Bibb and Shelby Counties
	E	Cylindrical lioplax *Lioplax cyclostomaformis*	Cahaba River drainage: Bibb and Shelby Counties
	E	Tulotoma snail *Tulotoma magnifica*	several tributaries of the Coosa River system
Crustacea (1)	E	Alabama cave shrimp *Palaemonias alabamae*	Madison County
Insecta (1)	E	American burying beetle* *Nicrophorus americanus*	Statewide
Plants (20)	T	Little amphianthus *Amphianthus pusillus*	Chambers and Randolph Counties
	T	Price's potato-bean *Apios priceana*	Autauga, Madison and Marshall Counties
	E	Rock cress *Arabis perstellata* var. *perstellata*	Bibb County
	E	Morefield's leather flower *Clematis morefieldii*	Madison County
	E	Alabama leather flower *Clematis socialis*	St. Clair and Cherokee Counties

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
	E	Leafy prairie-clover *Dalea foliosa*	Colbert, Franklin, Morgan, Lawrence, Jefferson Counties
	T	Eggert's sunflower *Helianthus eggertii*	Blount County
	E	Gentian pinkroot *Spigelia gentianoides*	Bibb County
	T	Lyrate bladder-pod *Lesquerella lyrata*	Colbert, Franklin and Lawrence Counties
	E	Pondberry *Lindera melissifolia*	Wilcox County
	T	Mohr's Barbara's buttons *Marshallia mohrii*	Bibb, Calhoun, Cherokee, Cullman, Walker, Etowah Counties
	T	American hart's-tongue fern *Asplenium scolopendrium* var. *americanum*	Morgan and Jackson Counties
	E	Harperella *Ptilimnium nodosum*	Cherokee, DeKalb and Tuscaloosa Counties
	T	Kral's water-plantain *Sagittaria secundifolia*	Cherokee, DeKalb and Winston Counties
	E	Green pitcher plant *Sarracenia oreophila*	Cherokee, DeKalb, Etowah, Jackson, and Marshall Counties
	E	Alabama canebrake pitcher-plant *Sarracenia rubra alabamensis*	Autauga, Chilton, Elmore Counties
	E	American chaffseed*? *Schwalbea americana*	Mobile, Baldwin, Geneva Counties
	T	Alabama streak-sorus fern *Thelypteris pilosa* var. *alabamensis*	Winston County
	E	Relict trillium *Trillium reliquum*	Henry, Lee, Bullock Counties
	E	Tennessee yellow-eyed grass	Bibb, Calhoun and Franklin

TAXA	STATUS	COMMON / SCIENTIFIC NAMES	DISTRIBUTION
		Xyris tennesseensis	Counties

Total Animal Species: 88, not including 5 species of whales
Total Plant Species: 20

Status:
- * = Not believed to occur in Alabama
- E = Endangered
- T = Threatened
- T(SA) = Threatened because of Similarity of Appearance
- CH = Critical Habitat has been designated

NOTE: There are 5 endangered species of whales found in coastal waters of the southeastern states. These include the finback whale *Balaenoptera physalus*, the humpback whale *Megaptera novaeangliae*, the right whale *Balaena glacialis*, the sei whale *Balaenoptera borealis*, and the sperm whale *Physeter catodon*. It is possible, though unlikely, that they could appear in Alabama coastal waters.

REFERENCE 16

Table 1. Selected Population and Housing Characteristics: 1990
Jefferson County, Alabama

The population counts set forth herein are subject to possible correction for undercount or overcount. The United States Department of Commerce is considering whether to correct these counts and will publish corrected counts, if any, not later than July 15, 1991. The user should note that there are limitations to many of these data. Please refer to the technical documentation provided with Summary Tape File 1A for a further explanation on the limitations of the data.

Total population	651,525
SEX	
Male	304,259
Female	347,266
AGE	
Under 5 years	44,919
5 to 17 years	117,669
18 to 20 years	27,868
21 to 24 years	36,444
25 to 44 years	208,830
45 to 54 years	64,604
55 to 59 years	28,764
60 to 64 years	30,955
65 to 74 years	52,162
75 to 84 years	30,204
85 years and over	9,106
Median age	34.1
Under 18 years	162,588
Percent of total population	25.0
65 years and over	91,472
Percent of total population	14.0
HOUSEHOLDS BY TYPE	
Total households	251,479
Family households (families)	176,573
Married-couple families	129,641
Percent of total households	51.6
Other family, male householder	7,402
Other family, female householder	39,530
Nonfamily households	74,906
Percent of total households	29.8
Householder living alone	66,633
Householder 65 years and over	26,851
Persons living in households	638,382
Persons per household	2.54
GROUP QUARTERS	
Persons living in group quarters	13,143
Institutionalized persons	8,463
Other persons in group quarters	4,680
RACE AND HISPANIC ORIGIN	
White	418,317
Black	228,521
Percent of total population	35.1
American Indian, Eskimo, or Aleut	889
Percent of total population	0.1
Asian or Pacific Islander	3,222
Percent of total population	0.5
Other race	576
Hispanic origin (of any race)	2,745
Percent of total population	0.4

Total housing units	273,097
OCCUPANCY AND TENURE	
Occupied housing units	251,479
Owner occupied	164,085
Percent owner occupied	65.2
Renter occupied	87,394
Vacant housing units	21,618
For seasonal, recreational, or occasional use	1,156
Homeowner vacancy rate (percent)	2.1
Rental vacancy rate (percent)	9.8
Persons per owner-occupied unit	2.67
Persons per renter-occupied unit	2.30
Units with over 1 person per room	6,770
UNITS IN STRUCTURE	
1-unit, detached	184,439
1-unit, attached	8,208
2 to 4 units	15,681
5 to 9 units	16,438
10 or more units	35,802
Mobile home, trailer, other	12,529
VALUE	
Specified owner-occupied units	141,935
Less than $50,000	56,396
$50,000 to $99,999	60,965
$100,000 to $149,999	13,819
$150,000 to $199,999	5,173
$200,000 to $299,999	3,334
$300,000 or more	2,248
Median (dollars)	58,700
CONTRACT RENT	
Specified renter-occupied units paying cash rent	81,787
Less than $250	37,647
$250 to $499	39,871
$500 to $749	3,672
$750 to $999	330
$1,000 or more	267
Median (dollars)	263
RACE AND HISPANIC ORIGIN OF HOUSEHOLDER	
Occupied housing units	251,479
White	170,236
Black	79,600
Percent of occupied units	31.7
American Indian, Eskimo, or Aleut	386
Percent of occupied units	0.2
Asian or Pacific Islander	1,062
Percent of occupied units	0.4
Other race	195
Hispanic origin (of any race)	979
Percent of occupied units	0.4

ATTACHMENT 2

ADEM

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

POST OFFICE BOX 301463 ♦ 1400 COLISEUM BLVD. 36110-2059
MONTGOMERY, ALABAMA 36130-1463
WWW.ADEM.STATE.AL.US
(334) 271-7700

JAMES W. WARR
DIRECTOR

DON SIEGELMAN
GOVERNOR

Facsimiles: (334)
Administration: 271-7950
General Counsel: 394-4332
Air: 279-3044
Land: 279-3050
Water: 279-3051
Groundwater: 270-5631
Field Operations: 272-8131
Laboratory: 277-6718
Mining: 394-4326
Education/Outreach: 394-4383

August 14, 2000

TRIP REPORT

TO: Jymalyn E. Redmond, Chief
Site Assessment Unit
Hazardous Waste Branch
Land Division

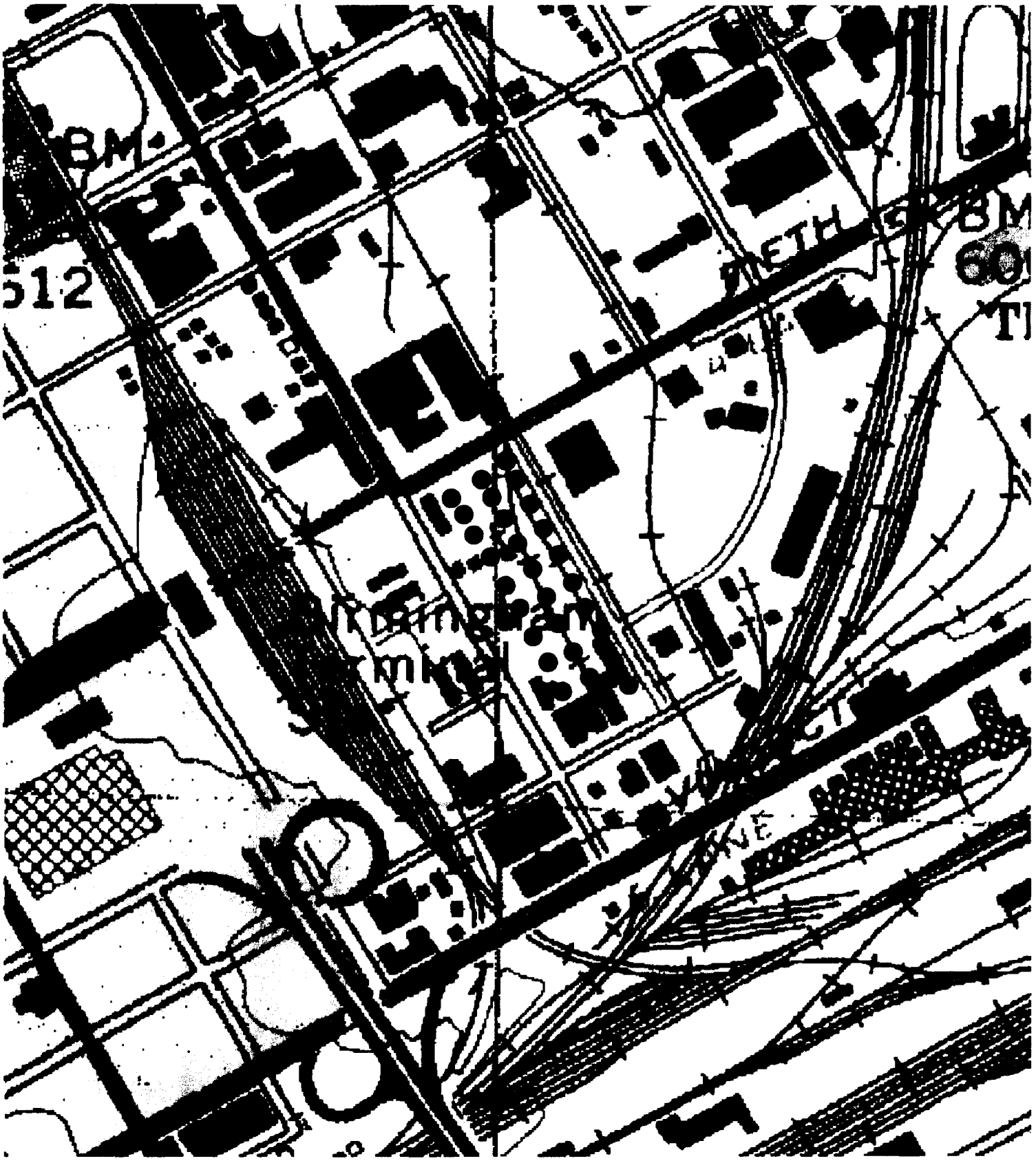
FROM: Paul I. Oyegbeda, ESII
Program Support Unit
Hazardous Waste Branch
Land Division

SUBJECT: **Jaffe Wholesale Iron and Metal Co.**
2850 5th Avenue North
Birmingham, Jefferson County, AL 35203

On August 8th, 2000, Ken Prestridge, John Glaze, Keevin Smith and Paul Oyegbeda, traveled to Jaffe Wholesale Iron and Metal Company (Jaffe), Birmingham in Jefferson County, Alabama to take soil samples.

Before taking the soil samples, the site was divided into grids and the sample locations marked and numbered with flags. A GPS reading of each point was taken. A soil sample was taken from each point and each sample was labeled and numbered with the corresponding number to each point. A total of thirty (30) soil samples were taken. The samples were properly kept and brought to our office for XRF reading.

cc: Clethes Stallworth, Chief
Ken Prestridge

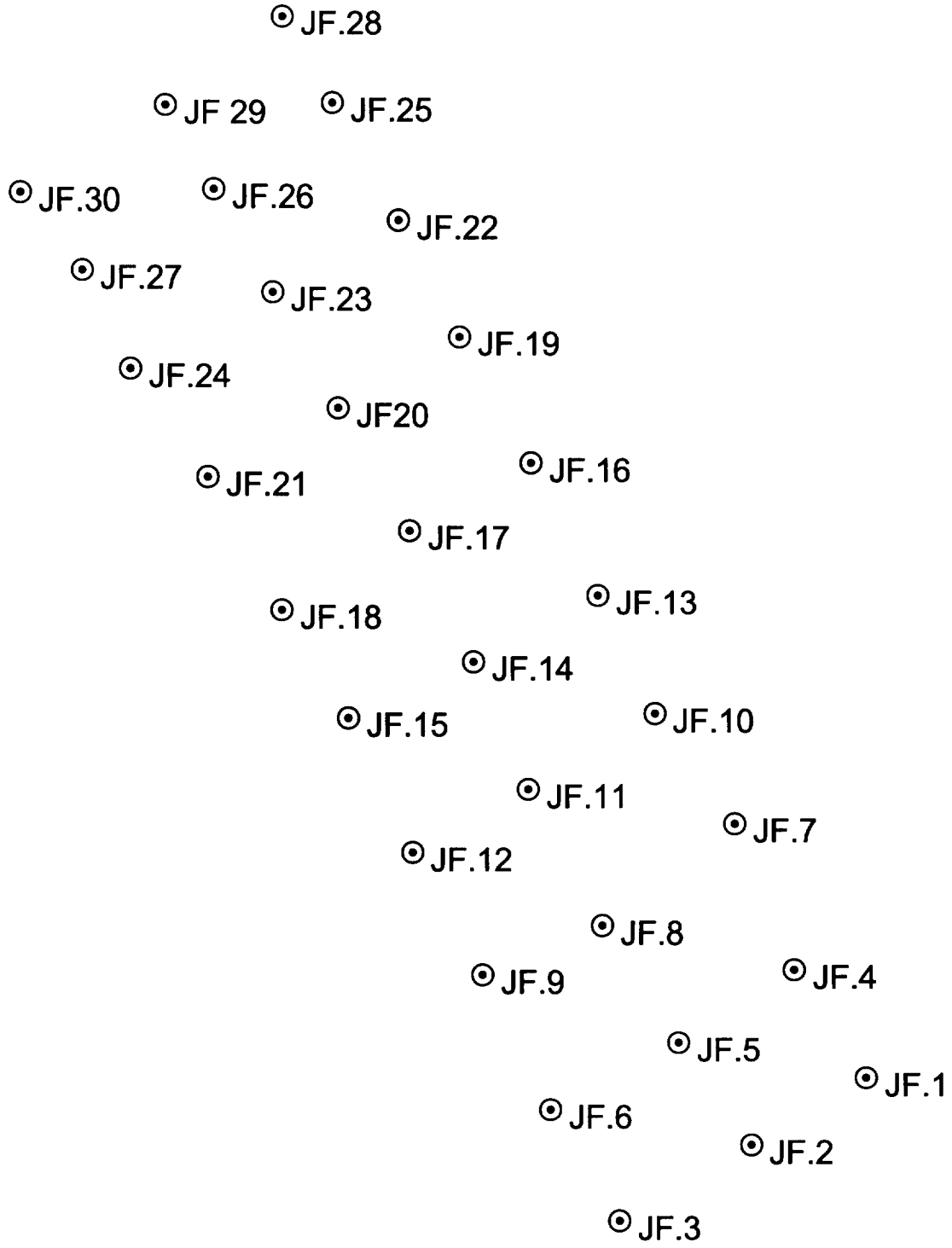


JAFFE WHOLESALE IRON AND METAL
PRELIMINARY ASSESSMENT
SOIL SCREENING
EPA ID No.: 000009280726

● 000808.dbf

500 0 500 1000 Feet

N
W E
S



JAFFE WHOLESALE IRON AND METAL
PRELIMINARY ASSESSMENT
EPA ID No.: 000009280726

⊙ 000808.dbf

100 0 100 200 Feet

N
W E
S

Soil Screening Levels: Ingestion (May 1996) (ppm)				**NA**		**NA**		**NA**		**NA**		**400**		**0.4**	
Soil Screening Levels: 1 DAF (May 1996) (ppm)				**NA**		**NA**		**NA**		**NA**		**NA**		**1**	
Superfund Chemical Data Matrix: Benchmarks (June 1996) (ppm)				**390**		**NA**		**NA**		**NA**		**NA**		**0.43/23**	
Risk Based Concentration (RBC) (04/12/99) (ppm)				**390**		**NA**		**47,000**		**NA**		**NA**		**0.43**	
ADEM XRF Method Detection Limit (MDL)			**07/31/2000 20:37**	**20.1**		**28.2**		**18.15**		**0.3**		**70.5**		**56.1**	
ADEM XRF Method Quantitation Limit (MQL)			**07/31/2000 20:37**	**66.933**		**93.906**		**60.4395**		**0.999**		**234.765**		**186.813**	
Sample Location	**XLNo**	**Ssec**	**Date/Time**	**Mo**	**± Prec**	**Zr**	**± Prec**	**Sr**	**± Prec**	**Rb**	**± Prec**	**Pb**	**± Prec**	**As**	**± Prec**
1	58	36.4	08/10/2000 9:37	NA		NA		NA		NA		NA		NA	
2	59	20.5	08/10/2000 9:37	<LOD	18.9	<LOD	25.95	<LOD	16.95	<LOD	0.3	<LOD	63.45	<LOD	52.65
3	60	20.4	08/10/2000 9:38	<LOD	25.2	136.7	34.1	138.7	25.5	1.2	0.4	<LOD	103.05	<LOD	78.15
4	61	20.3	08/10/2000 9:39	<LOD	27.6	339.4	46.7	171.2	29	1.5	0.5	1189.6	150	<LOD	165
5	62	22.1	08/10/2000 9:40	<LOD	31.8	95.9	43.7	220.8	39.2	2.5	0.8	5699.2	370	527.2	260
6	63	20.3	08/10/2000 9:42	<LOD	28.5	338.8	46.4	42.7	20.1	0.6	0.4	464.4	100	<LOD	125.85
7	64	20.3	08/10/2000 9:43	<LOD	21.3	155.8	30.9	25.8	16.2	<LOD	0.45	581.6	96.4	<LOD	117.75
8	65	20.5	08/10/2000 9:44	<LOD	24.3	85.7	29.4	55.1	19.4	<LOD	0.45	660.8	110	<LOD	126.6
9	66	20.4	08/10/2000 9:46	<LOD	26.25	478.8	45.9	<LOD	20.55	<LOD	0.45	<LOD	81	<LOD	65.4
10	67	20.4	08/10/2000 9:47	<LOD	25.5	181.7	33.6	28.6	16.7	<LOD	0.45	472	91.5	<LOD	111
11	68	20	08/10/2000 9:48	<LOD	32.25	150.6	47.8	104.8	33.1	<LOD	0.75	3708.8	310	<LOD	345
12	69	20.3	08/10/2000 9:50	<LOD	30.9	275.8	45.4	44.3	21.7	<LOD	0.6	1229.6	150	<LOD	180
13	70	20.2	08/10/2000 9:52	<LOD	28.5	169.5	38.3	35.6	21.1	<LOD	0.6	1420	160	<LOD	195
14	71	22.1	08/10/2000 9:53	<LOD	37.65	196.5	51.7	77.7	31.7	<LOD	0.9	3129.6	300	<LOD	330
15	72	20.5	08/10/2000 9:54	<LOD	36.6	592.8	65.1	74.5	24.7	<LOD	0.6	350.2	100	<LOD	126.3
16	73	20.4	08/10/2000 9:55	<LOD	38.25	464.4	65.1	58.3	26.5	<LOD	0.6	1189.6	170	<LOD	210
17	74	20.3	08/10/2000 9:56	<LOD	34.2	300.4	54.5	54.5	26.6	<LOD	0.75	1180	180	<LOD	210
18	75	20.4	08/10/2000 9:58	<LOD	39.75	376.6	60.8	64	27.8	<LOD	0.75	1140	180	<LOD	210
19	76	20.1	08/10/2000 9:59	<LOD	43.8	1029.6	92.7	<LOD	38.7	<LOD	0.75	1480	190	<LOD	225
20	77	20.3	08/10/2000 10:01	<LOD	32.7	347.8	49.1	39.6	20.8	<LOD	0.45	498.4	110	<LOD	131.4
21	78	20.2	08/10/2000 10:02	<LOD	43.2	421.6	66.8	66	31.3	<LOD	0.75	2449.6	270	<LOD	300
22	79	20.2	08/10/2000 10:03	<LOD	38.4	616.8	68.1	45.6	24	<LOD	0.6	968.8	150	<LOD	195
23	80	20.4	08/10/2000 10:05	<LOD	43.35	738.8	80.2	60.1	26.6	<LOD	0.6	788	150	<LOD	165
24	81	20.2	08/10/2000 10:07	<LOD	46.05	879.2	92.7	53.7	28.2	<LOD	0.75	1109.6	180	<LOD	225
25	82	20.1	08/10/2000 10:08	<LOD	46.35	792.4	86.9	94	32.7	<LOD	0.75	1840	230	<LOD	255
26	83	20	08/10/2000 10:10	<LOD	36.45	420.8	61.8	80.6	29.8	<LOD	0.75	2160	230	<LOD	270
27	84	22.1	08/10/2000 10:11	<LOD	39.45	324.4	60.6	98.7	32.9	<LOD	0.75	1729.6	230	<LOD	270
28	85	20.2	08/10/2000 10:12	<LOD	44.55	620.8	77.2	<LOD	42.15	<LOD	0.9	2169.6	250	<LOD	285
29	86	20.3	08/10/2000 10:14	<LOD	60.45	2049.6	160	56.9	31.9	<LOD	0.9	949.6	180	<LOD	225
30	87	20.1	08/10/2000 10:15	<LOD	39.45	362.6	59.6	59.8	28	<LOD	0.75	1540	200	<LOD	240
31	88	20.1	08/10/2000 10:17	<LOD	49.5	725.6	90.7	78	34.1	<LOD	0.9	1849.6	250	<LOD	285
32	89	20.1	08/10/2000 10:20	<LOD	55.95	1589.6	140	51	31.1	<LOD	0.9	1169.6	200	<LOD	240
33	90	22.1	08/10/2000 10:22	46.9	30	248.8	58	62.8	32.1	<LOD	0.9	2400	280	<LOD	300
34	91	20.2	08/10/2000 10:23	<LOD	47.7	209.8	61.6	<LOD	50.55	1.2	0.7	2209.6	290	<LOD	330
35	92	20.4	08/10/2000 10:24	<LOD	42.3	921.6	88.3	58	26.7	<LOD	0.6	1069.6	170	<LOD	195
JF-1 cooresponds to reading #63 and goes in order through JF-30															

23		23,000		NA		1,600		NA		NA		NA		390/78,000/390			
0.1		620		NA		7		NA		NA		NA		2/No Concern/2			
23		23,000		NA		1,600		NA		NA		11,000		390/78,000/390			
23/7.8		23,000		3,100		1,600		4,700		23,000		1,600		120,000/230			
34.65		97.8		180		42		7.8		615		1050		3748.8			
115.3845		325.674		599.4		139.86		25.974		2047.95		3496.5		12483.504			
Hg	± Prec	Zn	± Prec	Cu	± Prec	Ni	± Prec	Co	± Prec	Fe	± Prec	Mn	± Prec	Cr	± Prec		
NA		NA		NA		NA		NA		NA		NA		NA			
<LOD	33.15	<LOD	93.45	<LOD	165	<LOD	37.8	<LOD	7.05	<LOD	570	<LOD	1005	<LOD	3300		
<LOD	48.75	<LOD	150	<LOD	300	<LOD	116.4	<LOD	37.2	24588.8	2299.2	<LOD	4048.8	<LOD	8400		
<LOD	74.7	210.2	130	<LOD	315	<LOD	106.2	<LOD	34.05	21094.4	2099.2	<LOD	3900	<LOD	8246.4		
<LOD	180	7014.4	570	2640	670	<LOD	180	<LOD	47.55	35788.8	3200	10297.6	4198.4	<LOD	14697.6		
<LOD	69.75	1739.2	260	<LOD	555	<LOD	165	<LOD	51.15	46080	3398.4	<LOD	5846.4	<LOD	11692.8		
<LOD	63.45	1720	230	746	310	<LOD	96.6	<LOD	25.35	14592	1600	<LOD	3000	<LOD	6748.8		
<LOD	62.7	407.6	170	836	300	<LOD	101.7	<LOD	26.1	12000	1500	<LOD	2848.8	<LOD	6600		
<LOD	38.25	<LOD	112.5	<LOD	225	<LOD	78.45	<LOD	24	11494.4	1400	<LOD	2700	<LOD	6000		
<LOD	58.8	1149.6	200	539.2	280	<LOD	93.45	<LOD	27.15	14489.6	1699.2	<LOD	3148.8	<LOD	7200		
<LOD	165	5808	600	3529.6	829.6	<LOD	285	<LOD	83.55	89190.4	6198.4	<LOD	9000	<LOD	18000		
<LOD	96.75	4160	430	2249.6	580	<LOD	165	<LOD	43.8	28697.6	2800	<LOD	5097.6	<LOD	11097.6		
<LOD	115.8	6758.4	540	2588.8	650	<LOD	180	<LOD	48.45	37990.4	3099.2	<LOD	5400	<LOD	11097.6		
<LOD	165	10297.6	829.6	3760	969.6	<LOD	330	<LOD	102.6	124928	8198.4	<LOD	11097.6	<LOD	22483.2		
<LOD	73.65	818.4	230	<LOD	525	<LOD	165	<LOD	53.85	38681.6	3497.6	9996.8	4297.6	<LOD	13641.6		
<LOD	124.8	5977.6	610	2579.2	780	<LOD	225	<LOD	61.2	45875.2	4198.4	<LOD	7046.4	<LOD	14841.6		
<LOD	120.3	4339.2	490	958.4	600	<LOD	225	<LOD	75	68352	5299.2	10099.2	5798.4	<LOD	18000		
<LOD	121.2	4147.2	510	1580	670	<LOD	240	<LOD	75	65996.8	5299.2	10694.4	5897.6	<LOD	18000		
<LOD	127.5	5440	560	2040	720	<LOD	255	<LOD	78	86579.2	6000	<LOD	9000	<LOD	18000		
<LOD	89.85	3478.4	400	2179.2	560	<LOD	180	<LOD	50.55	35097.6	3200	7936	3897.6	<LOD	12441.6		
<LOD	180	10297.6	880	5760	1100	<LOD	300	<LOD	81.75	69888	5699.2	13798.4	6400	<LOD	19497.6		
<LOD	102.75	3200	390	<LOD	765	<LOD	210	<LOD	68.7	66150.4	4800	<LOD	7800	<LOD	14995.2		
<LOD	107.7	4278.4	510	1668.8	670	<LOD	225	<LOD	70.95	60262.4	4998.4	10297.6	5600	<LOD	18000		
<LOD	127.05	4268.8	530	<LOD	1050	<LOD	300	<LOD	96.9	108953.6	7699.2	<LOD	11241.6	<LOD	24000		
<LOD	145.35	6467.2	620	<LOD	1050	<LOD	285	<LOD	95.55	105984	7398.4	12294.4	7200	<LOD	20985.6		
<LOD	180	16294.4	1000	1560	909.6	<LOD	240	<LOD	68.25	53299.2	4499.2	8204.8	5097.6	<LOD	16492.8		
<LOD	180	13593.6	1000	1569.6	969.6	<LOD	375	<LOD	122.85	170905.59	10995.2	18790.4	9196.8	<LOD	26995.2		
<LOD	150	8096	750	3558.4	909.6	<LOD	285	<LOD	84.9	77056	6000	13798.4	6598.4	<LOD	20985.6		
<LOD	129.45	3280	470	<LOD	870	<LOD	255	<LOD	85.2	74598.4	6297.6	23692.8	7398.4	<LOD	25497.6		
<LOD	136.05	5238.4	560	1668.8	740	<LOD	300	<LOD	97.05	114995.2	7596.8	<LOD	10800	<LOD	22483.2		
<LOD	150	5680	640	<LOD	1110	<LOD	345	<LOD	118.65	134963.2	9696	24192	9196.8	<LOD	28492.8		
<LOD	128.1	2840	450	<LOD	975	<LOD	345	<LOD	117.9	137932.8	9798.4	35686.4	9696	<LOD	29990.4		
<LOD	165	5948.8	640	<LOD	1230	<LOD	405	<LOD	135.45	198963.2	12998.4	<LOD	14995.2	<LOD	29990.4		
<LOD	180	5849.6	750	2369.6	1000	<LOD	450	<LOD	143.7	185958.41	12998.4	<LOD	16492.8	<LOD	31488		
<LOD	107.25	2569.6	380	<LOD	720	<LOD	195	<LOD	68.1	59750.4	4800	13696	5699.2	<LOD	18000		

ATTACHMENT 1

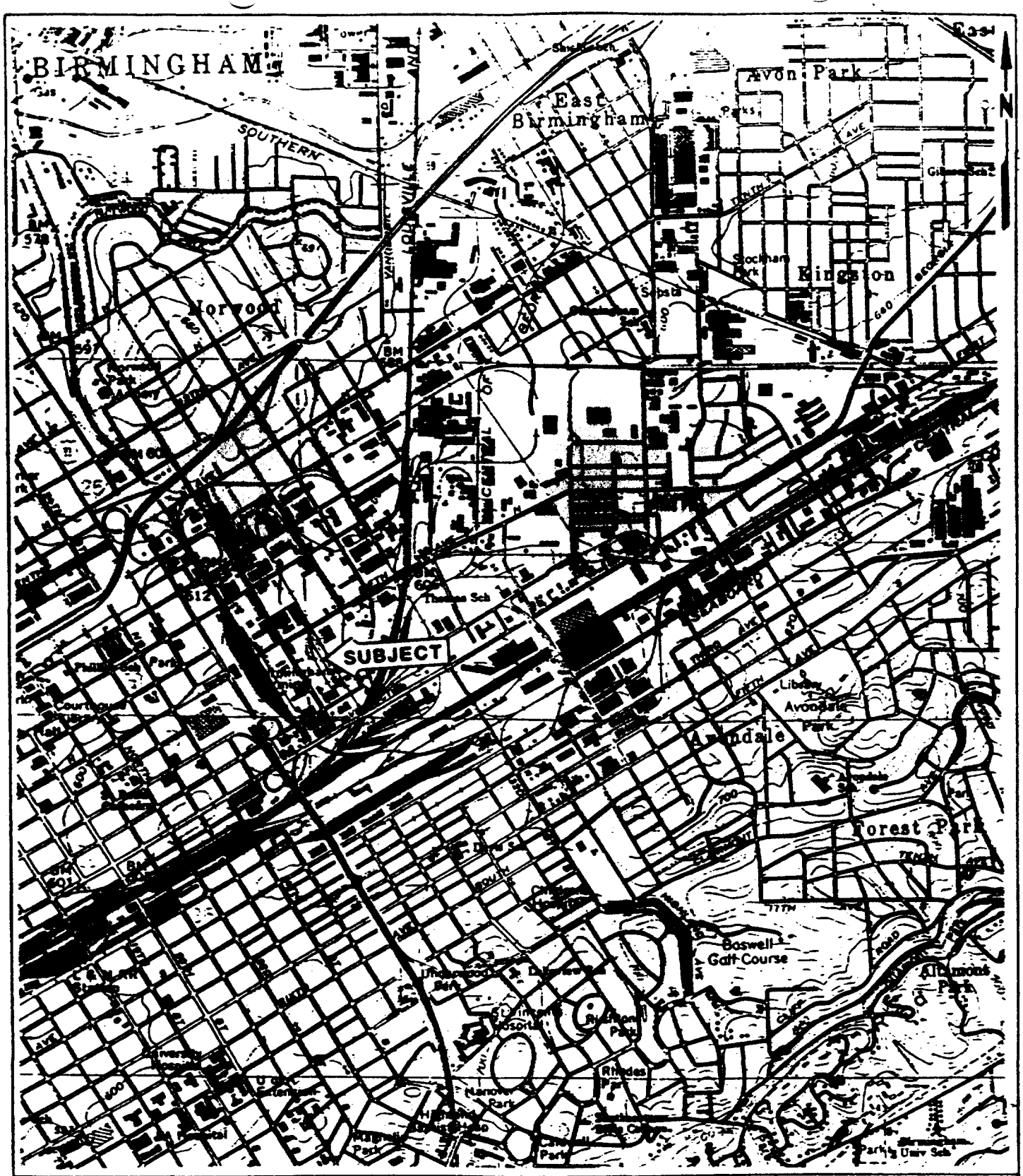


Figure No. 2.1	SITE VICINITY MAP FORMER JAFFE IRON & METAL COMPANY SITE 2850 5th Avenue North Birmingham, AL	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, AL 35210
Scale: 1" = 2000'		Date: 1978

Section 3

Geology, Soils and Hydrogeology

CFM LAYTON, INC.

SECTION 3
GEOLOGY, SOILS AND HYDROGEOLOGY

CONASAUGA FORMATION AND KETONA DOLOMITE FORMATION

Geologic information indicates the site is underlain by a contact between the Conasauga Formation and the Ketona Dolomite Formation. A vicinity geologic map is shown in Figure 3.1. The Conasauga Formation typically consists of thin-to-medium-bedded limestone with thin partings of shale. The beds are folded and fractured, and parts of the outcrop area are more intensely fractured than the others. Weathering of these formations results in a clayey or silty-clay soil that usually ranges from 5 to 20+ feet in thickness. The bedrock surface is highly irregular. Pinnacles may project to the surface, and limestone boulders and fragments occur throughout the soil zone. The formation is also susceptible to vertical clay filled slots and seams.

The Ketona consists of 400 to 600 feet of relatively pure chert-free light brownish-gray to yellowish-gray, crystalline, thick-bedded dolomite with lesser amounts of brownish-gray to yellowish-gray, crystalline, thick-bedded dolomite with lesser amounts of brownish-gray dolomite occurring near the contact with the underlying Conasauga Formation.

Both the Conasauga Formation and the Ketona Dolomite Formation are prone to the long-term dissolution of the bedrock. This dissolving of the rock not only results in highly irregular rock surface, but also in the creation of voids and cavities. The presence of these cavities can result in the formation of sinkholes. Although the site is prone to the development of sinkholes, there is no certainty that a sinkhole or other sinkhole-related features will or will not develop in the future. However, this area is much more susceptible to sinkhole development than an area underlain by sandstone or shale.

Key factors involved in the absence or presence of sinkhole activity in a particular area are the presence of soluble, carbonate rock and the movement of groundwater through the rock.

Figure No. 3.1	SITE GEOLOGY MAP FORMER JAFFE IRON & METAL CO. SITE 2850 5th Avenue North Birmingham, AL	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, AL 35210
Scale: 1" = 2000'		Date: 1979

The risk of sinkhole development is further increased by substantial pumping of the groundwater. As groundwater is moved from carbonate strata, cavities or voids within the rock that were once water-filled become open (Newman and Hyde, 1971). Residual clay overlying the voids and situated between the bedrock and ground surface begins to "spall" or migrate into these voids. This spalling continues upward, sometimes progressing to a level where the overlying clay can no longer support itself and a depression forms at the surface, resulting in a sinkhole.

The soil in the area is of the urban soil complex, which consists of areas covered by commercial, industrial, and high density residential facilities. These areas have been altered to achieve large areas that are nearly level, to avoid flooding or wetness problems, or to increase the load supporting capacity. The original soil was altered by cutting and filling, shaping and grading, excavating, blasting, compacting, or covering with concrete or asphalt. These areas are not differentiated by original soil or by underlying rock or sediments.

Section 4

Historical Use of Property and Adjacent Properties

SECTION 4
HISTORICAL USE OF PROPERTY AND ADJACENT PROPERTIES

4.1 AERIAL PHOTOGRAPHS

Aerial photographs taken in 1977, 1985, and 1993, which include the subject site, were examined. The aerial photographs are enclosed as Figures 4.1, 4.2, and 4.3. Aerial photographs dating back to 1956 were also examined for the subject site. All of these photographs from 1956 until 1985 (inclusive) show the subject site in operation as [redacted] Company (JAFFE). These photographs also show the Birmingham Hide and Tallow (BH&T) site in operation along the contiguous southwestern property boundary. The BH&T site was operated as an animal hide stripping and preparation factory.

4.2 HISTORICAL SANBORN MAPS

Historical Sanborn Maps including the subject site were reviewed for the years 1911, 1951, and 1969. The 1911 Sanborn Map shows the site as an undeveloped open lot. The 1951 Sanborn Map shows the subject site in operation as the Jaffe Wholesale Iron & Metals Company. The 1969 Sanborn Map shows the site in essentially the same configuration as it appeared in the 1951 Sanborn Map. These Sanborn maps are shown as Figures 4.4, 4.5 and 4.6.

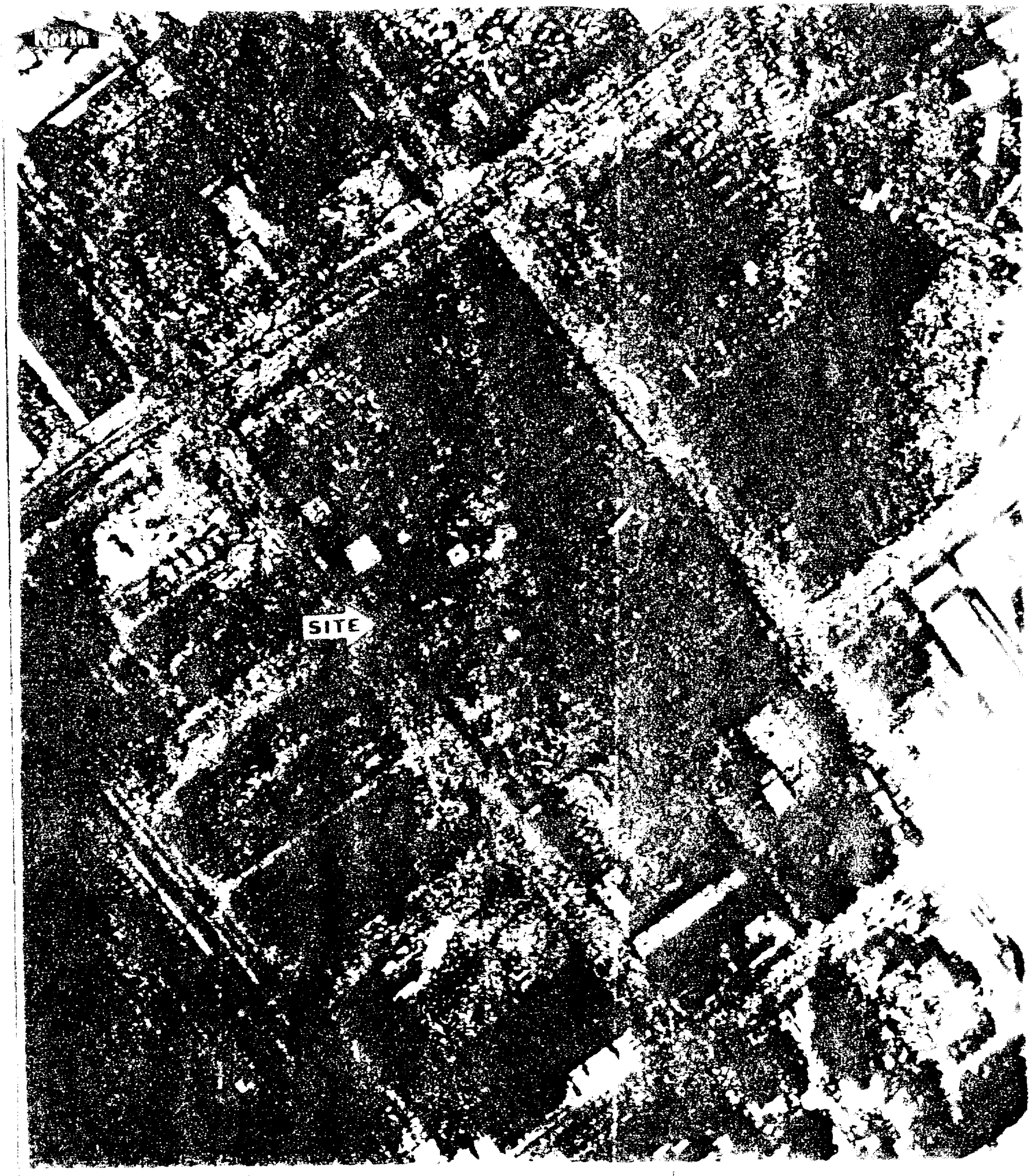
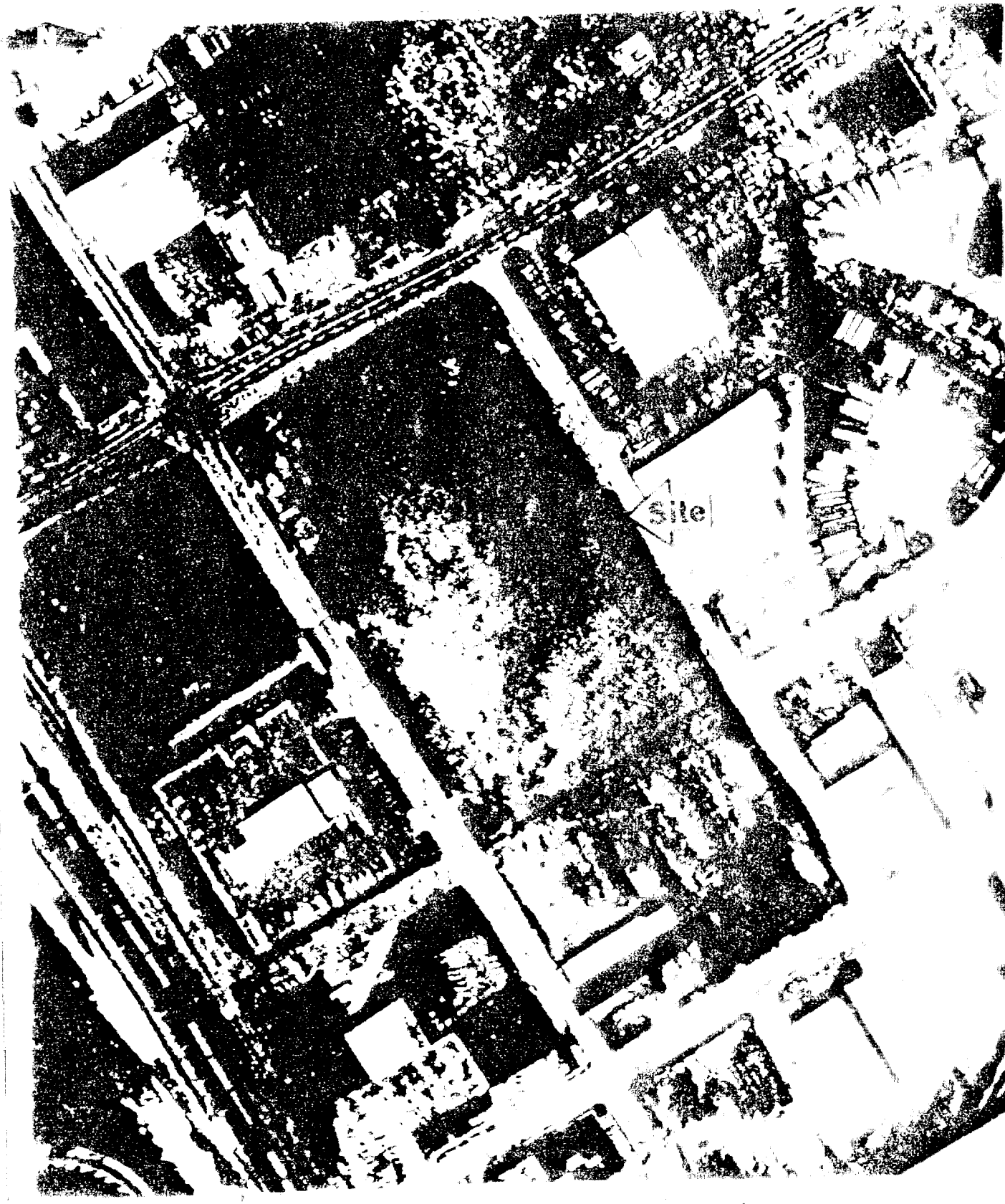


Figure No. 4	1977 AERIAL PHOTOGRAPH	LAYTON ENVIRONMENTAL ENGINEERING [illegible]
	FORMER JAFFE IRON & METAL COMPANY SITE	1960 [illegible]
Scale [illegible] 200	2850 [illegible] Avenue North	[illegible]ondale AL 35[illegible]
	Birmingham, AL	[illegible] 477


Site

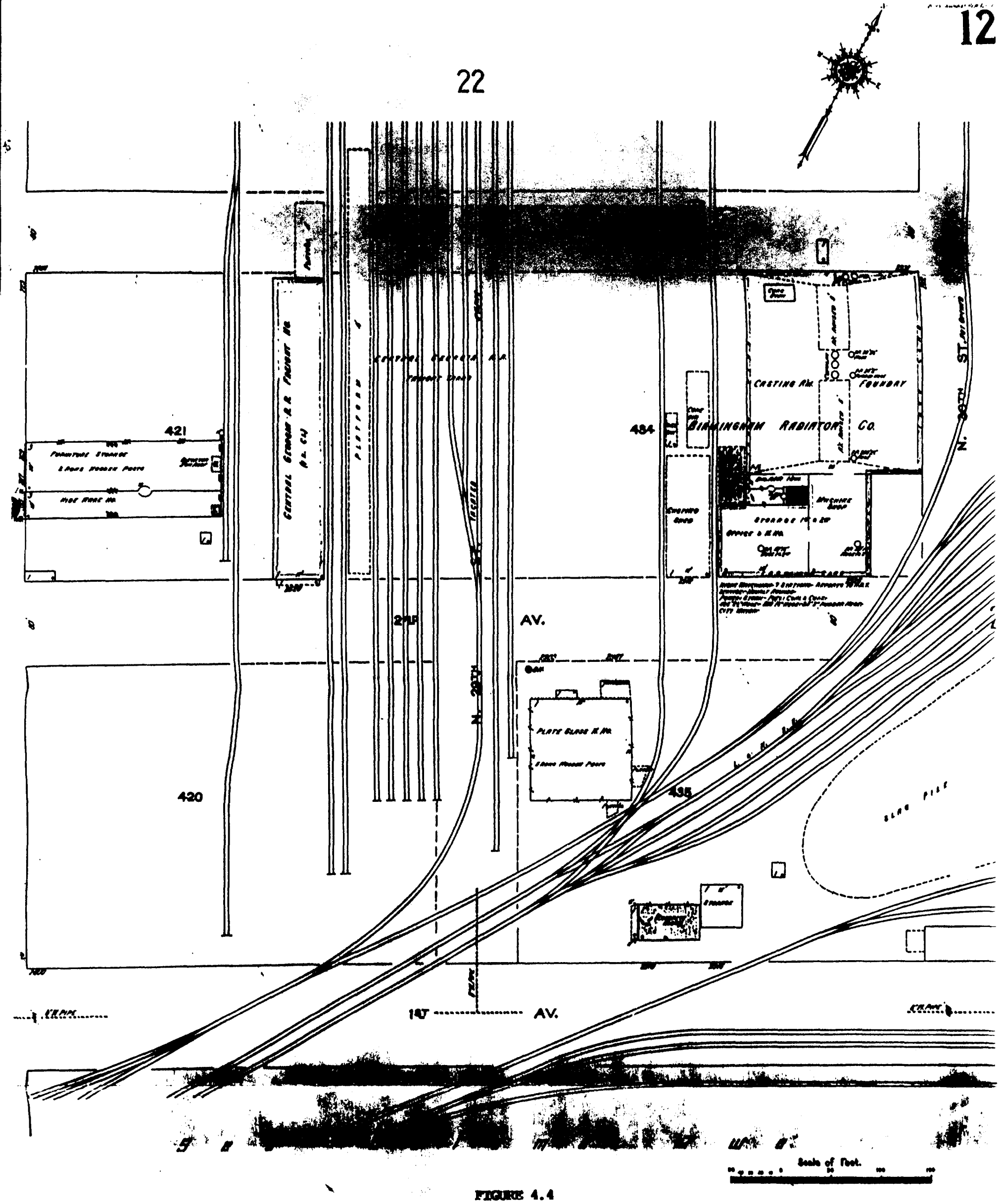


FIGURE 4.4

THE REPRODUCTION OF THIS SANBORN FIRE INSURANCE MAP HAS BEEN MADE BY PERMISSION OF SANBORN MAPPING & GEOGRAPHIC INFORMATION SERVICE. THIS COPYRIGHT MAY BE IN ACCORDANCE WITH THE TERMS AND CONDITIONS OF AN AGREEMENT BETWEEN ENVIRONMENTAL RISK

Environmental Resources Management

1121 Greenwood Crossings Ct
Suite 101
Bessemer, AL 35022
(205) 425-0015
(205) 425-9680 (fax)
http://www.erm.com

June 7, 1999

Certified Mail
Receipt Return Requested

Mr. Joe Kelly
Alabama Department of Environmental Management
P.O. Box 301463
Montgomery, AL 36130-1463

Subject: **Soil and Groundwater Data Sampling for the Former Jaffe Wholesale Iron and Metal Co. Site, Birmingham, Jefferson County, Alabama**
Groundwater Incident GW98-11-1

ERM.

Dear Mr. Kelly:

On May 20, 1999 ERM collected four (4) soil samples and one (1) groundwater sample to address ADEM's concerns regarding groundwater quality at the referenced site. As we have mentioned in our earlier correspondence this property is no longer owned by Jaffe Wholesale Iron and Metal Co. The current [redacted]

Soil Sampling

The soil samples collected by ERM on May 20, 1999 were taken at the sample locations mapped in figure 6.2 of the Layton Report as numbers 2, 4, 6 and 1. These sample points were located at the site by measurements taken from figure 6.2 (copy attached).

The soil samples were taken from 0 - 2 feet and composited for a laboratory analysis of TPH. The results of the TPH analysis are as follows:

Sample Number	TPH (ppm)
1	ND
2	ND
4	ND
6	33.1

ND- Concentration is less than detection limit

Groundwater Sampling

A groundwater sample was taken from well number MW-1 and analyzed for total and dissolved lead, BTEX and PAH. It should be noted that the fluid level and total depth for well MW-1 were taken to determine the actual well fluid volume. The well was then purged of three well volumes of water prior to collecting the samples. The results of the total and dissolved lead, TPH and PAH analysis are as follows:

Parameter	Results (ppm)
Dissolved Lead	0.16
Total Lead	0.17
BTEX	ND
PAH	ND

ND- Concentration is less than detection limit, for all constituents

A copy of the above soil and groundwater analytical reports and chain of custody are attached.

Conclusion

The soil samples taken from the Kimerling property on May 20, 1999 are deemed to be representative of the overall site soil characteristics. Based on the laboratory analysis of these samples TPH is not present above the threshold limit of 100 ppm.

[redacted]

The dissolved lead value is 0.16 ppm and the total lead value is 0.17 ppm. Based on the Birmingham North 7.5 minute series topographic quadrant the general groundwater flow is in the south-west direction. This would indicate that the high lead levels are coming form an off site source up-gradient. This is confirmed, by the lead levels, from the groundwater analysis of wells MW-1, MW-3 and MW-4 from the Layton report dated October 1995.

ERM believes that the lead may be coming from an off-site source. Due to the industrial/commercial use of the properties in the area and the absence of groundwater [redacted] used for drinking water [redacted] Additionally no other receptors [redacted] groundwater are located [redacted]

Based on the above evaluation and analysis of the soil and groundwater at this site the Charles and Ester Lee Kimerling Family Partnership, LTD respectfully requests that a letter of no further action, as it relates to the Kimerling property located at 2850 5th Avenue North, be granted by the Alabama Department of Environmental Management.

If you have any questions regarding this report, please do not hesitate to call me at (205) 425-0015.

Sincerely,

ENVIRONMENTAL RESOURCES MANAGEMENT

Dennis Lewis, P.E.

Attachments

Cc: Lionel C, Kimerling
Nill V. Toulme, Alston & Bird, LLP

TCE ENVIRONMENTAL SERVICES, INC.

4764 First Avenue, North
Birmingham, Alabama 35222
Phone: 205-595-6042 • Fax: 205-595-9254

Post Office Box 18574
Huntsville, Alabama 35804
Phone: 256-539-4809 • Fax: 256-539-2476

Laboratory Report

Client : ERM, Inc.
1121 Greenwood Crossings Court
Bessemer, AL. 35022
Client Project : Kimmerlink
Sample Date : 05/20/99
Sampler : DL

Report Date : 06/02/99
TCE Project : 330AAG0599
Date Received : 05/20/99
Sample Matrix : Soil
Lab ID : See Below
Sample ID : See Below

Sample ID	Laboratory ID	Parameter	Results	Units	Detection Limit	EPA Method	Analyst	Date/Time Analyzed
#1	14131	TPH	ND	mg/kg	5.0	EPA 418.1	JEW	05/26/99/1500
#2	14132	TPH	ND	mg/Kg	5.0	EPA 418.1	JEW	05/26/99/1500
#4	14133	TPH	ND	mg/Kg	5.0	EPA 418.1	JEW	05/26/99/1500
#6	14134	TPH	33.1	mg/Kg	5.0	EPA 418.1	JEW	05/26/99/1500

ND = Concentration is less than detection limit.

Method reference:

EPA Methods for the Chemical Analysis of Water and Wastes. March, 1983.

Standard Methods for the Examination of Water and Wastewater. 18th Edition, 1992.

Test Methods for Evaluating Solid Waste. November, 1986, SW-846, 3rd Edition.

Approved By: Robert E. Williams Date: 6/3/99

QA Review By: Seyron Brown Date: 6-03-99

ry Report

Report Date	:	06/02/99
TCE Project	:	330AAG0599
Date Received	:	05/20/99
Sample Matrix	:	Water
Lab ID	:	See Below
Sample ID	:	See Below

Units	Detection Limit	EPA Method	Analyst	Date/Time Analyzed
ng/L	0.05	EPA 6010	SVB	05/24/99/1300
ng/L	0.05	EPA 6010	SVB	05/24/99/1300
ug/L	2	EPA 8260	GMK	05/27/99/1349
ug/L	2	EPA 8260	GMK	05/27/99/1349
ug/L	2	EPA 8260	GMK	05/27/99/1349
ug/L	2	EPA 8260	GMK	05/27/99/1349
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042
ug/L	5	EPA 8270	GMK	06/01/99/2042

port

Report Date	:	06/02/99
TCE Project	:	330AAG0599
Date Received	:	05/20/99
Sample Matrix	:	Water
Lab ID	:	QA/QC
Sample ID	:	See Below

:	Percent Precision	Analyst	Date/Time Analyzed
licate Analysis			
0.0 - 124.0%		GMK	06/01/99/1847
.0 - 130.0%		GMK	06/01/99/1847
4.0-142.0%		GMK	06/01/99/1847
3.0-145.0%		GMK	06/01/99/1847
9.0-139.0%		GMK	06/01/99/1847
5.0-115.0%		GMK	06/01/99/1847

Acceptance Limits	Analyst	Date/Time Analyzed
25.0-108.0%	GMK	06/01/99/2042
30.0-114.0%	GMK	06/01/99/2042
35.0-118.0%	GMK	06/01/99/2042
37.0-142.0%	GMK	06/01/99/2042

	Percent Precision	Analyst	Date/Time Analyzed
licate Analysis			
0.0%	0.2	GMK	05/27/99/1132
0.0%	0.6	GMK	05/27/99/1132
0.0%	1.8	GMK	05/27/99/1132
0.0%	1.5	GMK	05/27/99/1132
0.0%	0.7	GMK	05/27/99/1132

Acceptance Limits	Analyst	Date/Time Analyzed
75.0-125.0%	GMK	05/27/99/1349
75.0-125.0%	GMK	05/27/99/1349
75.0-125.0%	GMK	05/27/99/1349

TCE ENVIRONMENTAL SERVICES, INC.

CHAIN OF CUSTODY

4764 FIRST AVENUE NORTH BIRMINGHAM, AL 35222
Phone 205/595-6042 Fax 205/595-9254

PAGE 1 OF 1

PROJECT NUMBER: 9276	PURCHASE ORDER NUMBER: 9276 Rimkus	CLIENT PHONE: 425-0015
PROJECT NAME: Timberline	CLIENT NAME: ERM	CLIENT TOLL FREE:
PROJECT LOCATION: Pelham, AL	CLIENT ADDRESS: 3121 Greensboro Crossings	CLIENT FAX: 425-9680
PROJECT MANAGER: D. Lewis	Suite 101 Hoover, AL 35226	

CLIENT SAMPLE I.D.	SAMPLE DATE	SAMPLE TIME	SAMPLER INITIALS	SAMPLE MATRIX	SAMPLE PRESERVATIVE	ANALYSES REQUESTED: TPH	BTEX	PAH	Dissolved Lead	Total Lead
#1	5/20	1340	DAL	Soil	—	X				
#2		1300				X		SEE NOTE		
#4		1320				X				
#6		1400				X				
MW #1	5/20	1430	DAL	H2O			X			
							X			
								X		
									X	X

NOTE: RUN TPH ON SOIL SAMPLES AND H2O SAMPLE. CALL DENNIS LEWIS AT ERM AT 425-0015 WITH TPH VALUES AND INSTRUCTIONS ON FURTHER ANALYSIS

RELINQUISHED BY:	DATE:	TIME	RECEIVED BY	DATE	TIME
[signature]	5/20/94	14:45	[signature]	5-20	1500
RELINQUISHED BY:	DATE:	TIME	RECEIVED BY	DATE	TIME

TCE, INC., SAMPLE RECEIPT RECORD

CLIENT: ERM	DATE RECEIVED: 5-20
CONTACT: D Lewis	TCE PROJECT NUMBER: 330A96
SAMPLE MATRIX: H_2O	METHOD OF SHIPMENT:

CHAIN OF CUSTODY PRESENT:	YES	NO	SEE EXPLANATION
CHAIN OF CUSTODY SIGNED:	YES	NO	SEE EXPLANATION
CHAIN OF CUSTODY COMPLETE:	YES	NO	SEE EXPLANATION
SAMPLES LABELED:	YES	NO	SEE EXPLANATION
AGREEMENT BETWEEN CHAIN OF CUSTODY AND SAMPLE LABELS:	YES	NO	SEE EXPLANATION
SAMPLES RECEIVED COLD (1-4 C):	YES	NO	SEE EXPLANATION
SAMPLES PRESERVED CORRECTLY:	YES	NO	SEE EXPLANATION
CONTAINERS RECEIVED INTACT:	YES	NO	SEE EXPLANATION
HEADSPACE IN VOLATILE WATER SAMPLES:	YES	(NO)	SEE EXPLANATION

EXPLANATIONS:	
CLIENT NOTIFIED:	YES NO
DATE/TIME:	
INITIALS:	
PERSON CONTACTED:	
NOTES/COMMENTS:	

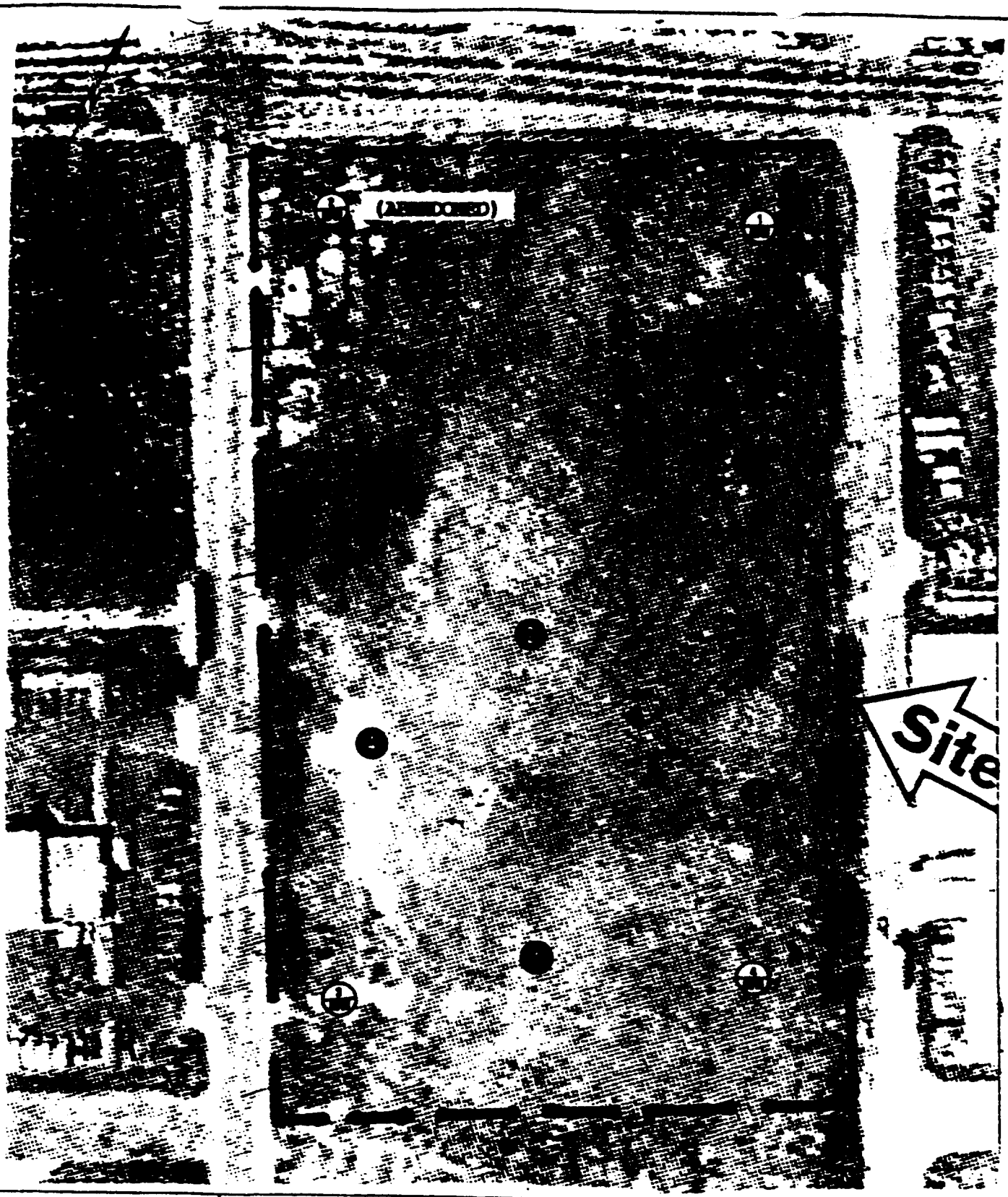


Figure No. 6.2

SB Soil Boring

MW Monitoring Well

Scale:
1" = 100'

SOIL BORING AND MONITORING WELL LOCATION MAP

FORMER JAFFE IRON & METAL COMPANY SITE
2850 5th Avenue North
Birmingham, Alabama

LAYTON ENVIRONMENTAL ENGINEERING, INC.
7960 Crestwood Blvd.
Irondale, AL 35210

Date: Sept. 1995

Phase I and Limited Phase II Environmental Site Assessment

FORMER JAFFE WHOLESALE IRON & METAL CO.

2850 5th Avenue North
Birmingham, Alabama

Prepared For:

Mr. Don Siegal
LEITMAN, SIEGAL, PAYNE & CAMPBELL, P.C.
Suite 400, Land Title Building
600 North 20th Street
Birmingham, Alabama 35203

October, 1995
Revised: September, 1996

OCT 1988
RECEIVED
ADEM
GROUNDWATER
BRANCH

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Section 1

Introduction

SECTION 1
INTRODUCTION

1.1 PURPOSE AND SCOPE OF ASSESSMENT

The purpose of this assessment was to investigate potential environmental liabilities associated with the subject site. The subject site is the [redacted]
The scope of our study included review of available information and records, visual inspection of the property and surrounding property, installation and sampling of groundwater monitoring wells, soil sampling, and preparation of this report.

1.2 INFORMATION SOURCES

Research and evaluation of the environmental conditions at the property and surrounding properties include utilization of the following sources:

1. United States Geological Survey, 7.5 minute Topographic Quadrangle, North Birmingham.
2. United States Department of Agriculture (USDA), Soil Conservation Service (SCS), Soil Survey of Jefferson County, Alabama.
3. Jefferson County Land Development Office aerial photographs including subject site.
4. Geological literature and maps published by the Alabama Geological Survey.
5. EPA National Priority List (NPL) of known environmental contaminated sites which will be or are receiving federal assistance in site remediation.
6. EPA Comprehensive Environmental Response, Compensation, and Liability (CERCLIS) List of sites of abandoned, uncontrolled, or inactive hazardous waste sites which are eligible for monetary assistance in remediation.
7. EPA Toxic Release Inventory (TRI) Report on release of toxic chemicals into the environment.

8. EPA Resource Conservation and Recovery Information System (RCRIS) Report of large quantity generators and treatment, storage and disposal (TSD) facilities.

9. RCRIS Report on small quantity generators and transporters.

10. EPA Facility Index System (FINDS) List of environmental regulated sites.

11. Department of Energy Nuclear Power Plant Listing.

12. EPA Open Dump Report listing those facilities that accept solid waste but do not meet EPA's requirements of a solid waste disposal facility.

13. ADEM List of Regulated Underground Storage Tanks.

14. ADEM List of Permitted Landfills.

15. ADEM Spill and Incidence Files.

Section 2

Property Description

CFM LAYTON, INC.

SECTION 2
PROPERTY DESCRIPTION

The subject property is located in the Northwest 1/4 of the southwest 1/4 of Section 30, Township 17 South, Range 2 West, Jefferson County, Alabama. A Vicinity Sketch is included as Figure 2.1.

The property is situated in a developed area of Birmingham, Jefferson County, Alabama and bounded by industrial and commercial operations.

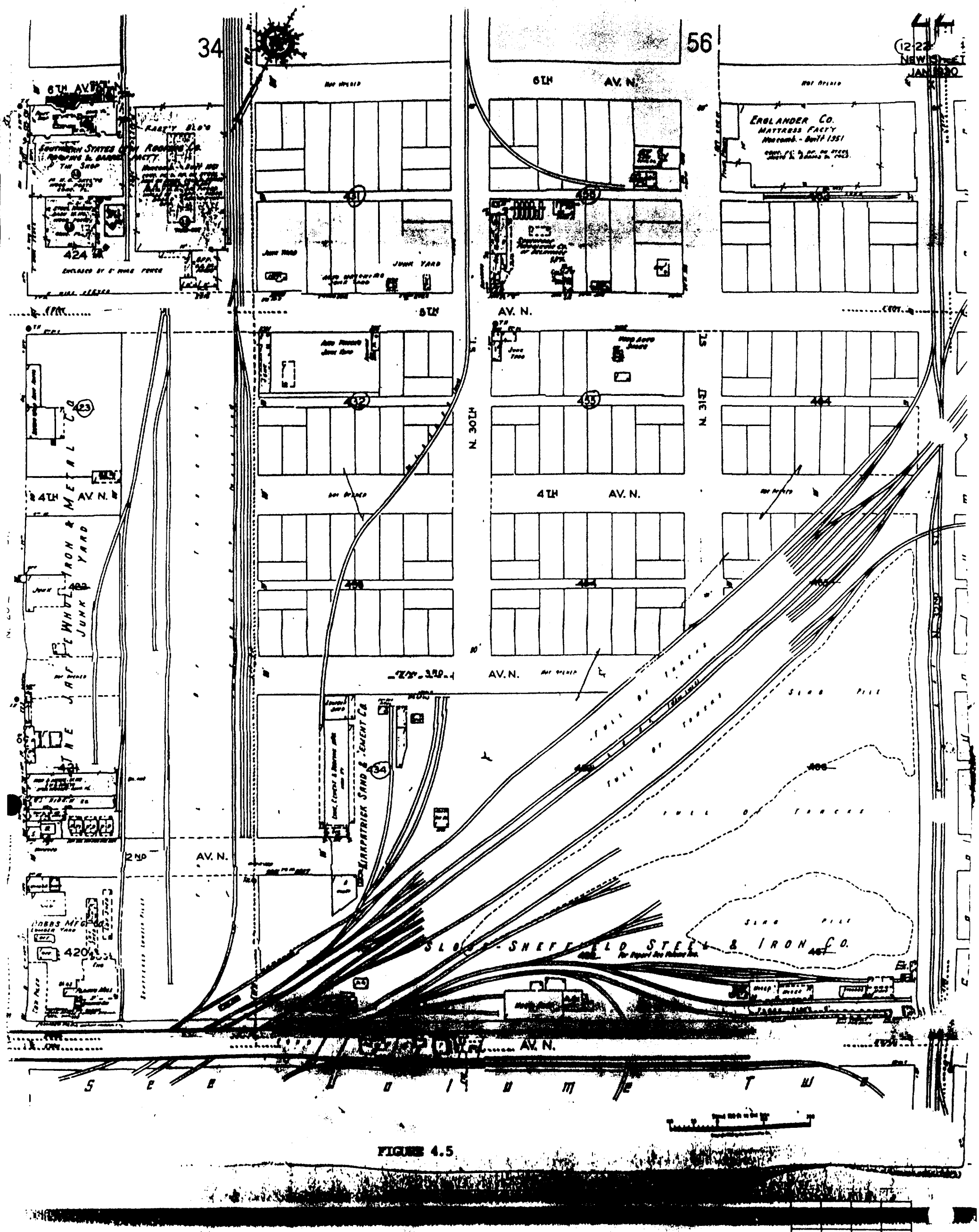

FIGURE 4.5

Environmental Risk Information & Imaging Services
1421 Prince Street ■ Suite 230 ■ Alexandria, VA 22314 ■ (703) 836-0402 ■ FAX (703) 836-0468

SANBORN MAPS™ by ERIS

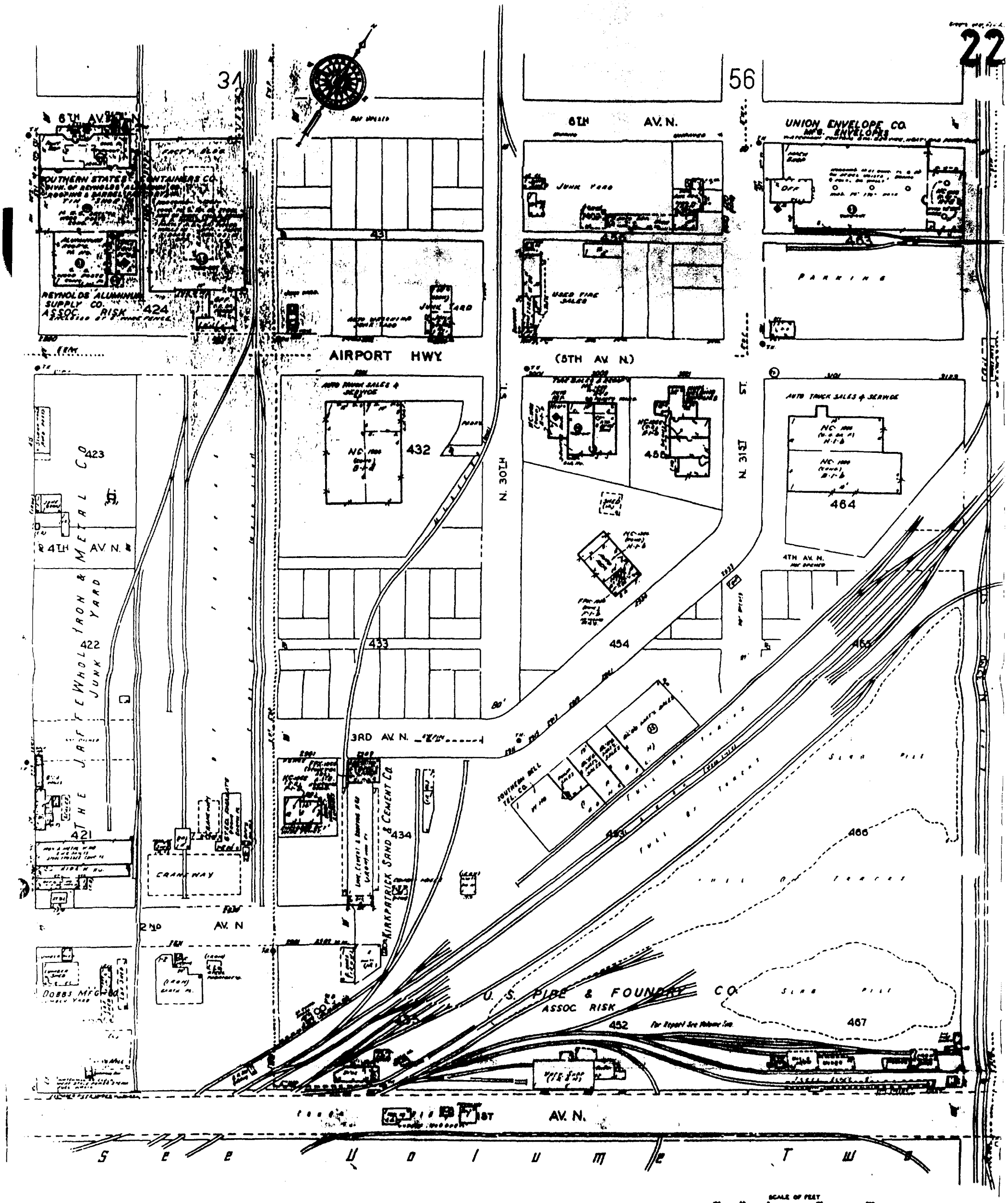

FIGURE 4.6

Environmental Risk Information & Imaging Services
1421 Prince Street ■ Suite 230 ■ Alexandria, VA 22314 ■ (703) 836-0402 ■ FAX (703) 836-0468

SANBORN MAPS™ by ERIS

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Section 5

Agency Consultation and Available Records

SECTION 5
AGENCY CONSULTATION AND AVAILABLE RECORDS

5.1 FEDERAL

The following Federal records were reviewed and evaluated: National Priorities List (NPL); Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List; Toxic Release Inventory Report; Emergency Response Notification Notification System (ERNS); Facility Index System (FINDS); Civil Enforcement Docket; Nuclear Power Plant Listings; and Open Dump List.

5.1.1 NPL List

The National Priorities (Superfund) List (NPL) is EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund Program. A site, to be included on the NPL, must either meet or surpass a pre-determined hazardous ranking systems score, or be chosen as a state's top-priority site, or meet all three of the following criteria:

1. The U.S. Department of Health and Human Services issues a health advisory recommending that people be removed from the site to avoid exposure;
2. EPA determines that the site represents a significant threat; and
3. EPA determines that remedial action is more cost-effective than removal action.

A search of the National Priorities List revealed that there were no Superfund sites located within a one mile radius of the property.

5.1.2 CERCLIS Database

The CERCLIS List is a compilation by EPA of the sites which EPA has investigated or is currently investigating for a release of threatened release of hazardous substance pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (Superfund Act).

A search of the CERCLIS database revealed that the following CERCLIS sites are located within a one mile radius: Indurall Coatings (located approximately 0.8 miles north of the subject site) and Sirco Systems (located approximately 0.2 miles north-northwest of the subject site). No further EPA action is pending at either site relating to these CERCLIS investigations. These sites are located on Figure 5.1.

5.1.3 Toxic Release Inventory

The Toxic Release Inventory Report (TRI) contains information on the estimated release of toxic chemicals into the environment. The TRI Report includes data relating to the amount of chemicals that are stored at a facility, and the estimated quantity that has been emitted into the environment.

A search of the Report revealed that the following TRI facilities are located within a one mile radius of the site: Sirco Systems, Inc.; American Marble Co.; Bermco Aluminum; Indurall Coatings; and Sunnyland Refining Co. These sites are located on Figure 5.1.

5.1.4 Resource Conservation and Recovery Information System

The Resource Conservation and Recovery Information System (RCRIS) Report of large quantity generators and treatment, storage, and disposal (TSD) facilities contains information pertaining to those facilities that are required to register their hazardous waste activity under the Resource Conservation and Recovery Act. A search of the report revealed that there are no TSD sites within a one mile radius of the site.

A search of the RCRIS database revealed that fifty-eight large quantity generators are located within a one mile radius. The closest large quantity generator is Sirco Systems, located 0.2 miles north of the subject site. All fifty-eight large quantity generators are located on Figure 5.1.

The Resource Conservation and Recovery Information System (RCRIS) Report of small quantity generators and transporters

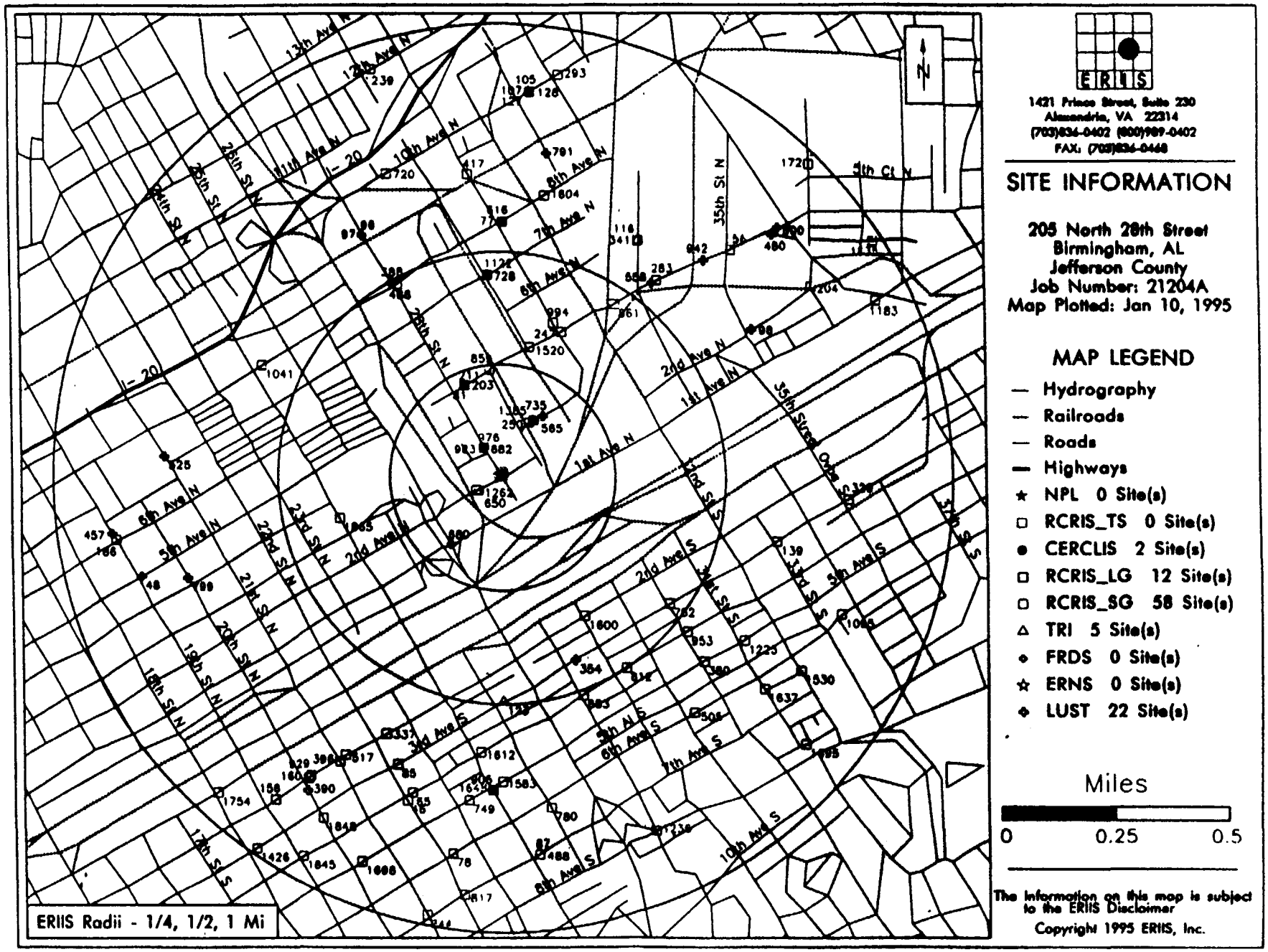

ERIIS Radii - 1/4, 1/2, 1 Mi
N
ERIS
1421 Prince Street, Suite 230
Alexandria, VA 22314
(703)836-0402 (800)989-0402
FAX: (703)836-0468
SITE INFORMATION
205 North 28th Street
Birmingham, AL
Jefferson County
Job Number: 21204A
Map Plotted: Jan 10, 1995
MAP LEGEND
Hydrography
Railroads
Roads
Highways
NPL 0 Site(s)
RCRIS_TS 0 Site(s)
CERCLIS 2 Site(s)
RCRIS_LG 12 Site(s)
RCRIS_SG 58 Site(s)
TRI 5 Site(s)
FRDS 0 Site(s)
ERNS 0 Site(s)
LUST 22 Site(s)
Miles
0
0.25
0.5
The Information on this map is subject to the ERIIS Disclaimer
Copyright 1995 ERIIS, Inc.

FIGURE 5.1

contains information pertaining to those facilities that are required to register their hazardous waste activity under the Resource Conservation and Recovery Act.

A search of the RCRIS database revealed that forty-three small quantity generators are located within a one mile radius. Each small quantity generator is located on Figure 5.1, and additional information on each generator is shown in Appendix A.

5.1.5 FINDS Database

The Facility Index System (FINDS) is a compilation of any property or site which the EPA has investigated, reviewed or been made aware of in connection with its various regulatory programs. Each record indicates the EPA Program Office that may have files on the site or facility.

[redacted]

5.1.6 Nuclear Facilities

A search of the database revealed no nuclear facilities within a one mile radius of the property.

5.1.7 Open Dump

The Open Dump report is a listing of those facilities that have accepted solid waste, but do not meet the EPA's requirements of a solid waste disposal facility. Further, these facilities do not accept hazardous or industrial waste.

A search of the database revealed no open dumps within a one mile radius of the property.

5.2 STATE

The following State records were examined and evaluated:

Underground Storage Tank (UST), Permitted Landfills, and Spill and Incidence Files.

5.2.1 UST Database

The Alabama Department of Environmental Management (ADEM) maintains an inventory of facilities with registered underground storage tanks located within the state. A search of the Alabama Underground Storage Tank database revealed that 103 facilities have registered underground storage tanks within a one mile radius of the site. Also, five USTs are located within 1/4 mile of the property. No USTs are believed present on the site. All 103 UST sites are located on Figure 5.2, and additional information on each site is located in Appendix A.

5.2.2 LUST Database

ADEM maintains an inventory of facilities with known leaking underground storage tanks (LUST) located within the state. A search of the Alabama LUST database reveals that twenty-two leaking USTs are located within one mile of the subject site. Five of the leaking USTs are within 1/4 mile of the subject site. The closest UST is across 28th Street North from the subject site, located at Penske Truck Leasing Co. which was removed or upgraded in 1992.

5.2.3 Permitted Landfills

A search of the files revealed that there are no permitted landfills within a one mile radius of the property. There are, however, twenty-seven landfills within Jefferson County.

5.2.4 Spills and Incidence

A search of the ADEM Spill and Incidence Files revealed no spills within a one mile radius of the property.

5.3 ADDITIONAL INFORMATION

Detailed information concerning each of the sites mentioned above is included in Appendix A.

Section 6

On-Site Investigation

CFM Layton, Inc.

SECTION 6
ON-SITE INVESTIGATION

The on-site investigation of the site consisted of a walk-through of the subject property, soil sampling and analysis, and groundwater sampling and analysis.

6.1 PROPERTY WALK-THROUGH

A property walk-through determined that all existing buildings have been demolished down to concrete foundations. Large volumes of demolition rubble are located on-site. The rubble consists largely of bricks, lumber, steel beams, concrete blocks, and other inert debris.

[redacted] Some areas of the site are paved with concrete, including concrete building foundations. Buried debris such as concrete and steel is believed to be present at unknown locations throughout the site.

6.2 SOIL AND GROUNDWATER SAMPLING AND ANALYSIS

Since previous industrial activities were conducted at the subject site, soil and groundwater samples were collected and analyzed to determine the impact of these activities on the sub-surface media.

6.2.1 Soil Sampling

Soil samples were collected at the locations shown in Figure 6.1, and analyzed for total petroleum hydrocarbons (TPH) and total RCRA metals (Ag, As, Ba, [redacted] Pb, [redacted] selected toxicity characteristic leachate procedure ([redacted] constituents.

This soil analysis indicates that elevated concentrations of lead, mercury, chromium and total petroleum hydrocarbons (TPH) are present in the upper two feet of soil across the site. A "toxicity

2011 Screening Values for clean up using Risk Based table (Region 3 EPA)

Arsenic 0.43 R/ 3.8 mg/kg I Hg = 23 R/ 610 I

Lead 400 mg R/ 1000 I Water - MCL Values

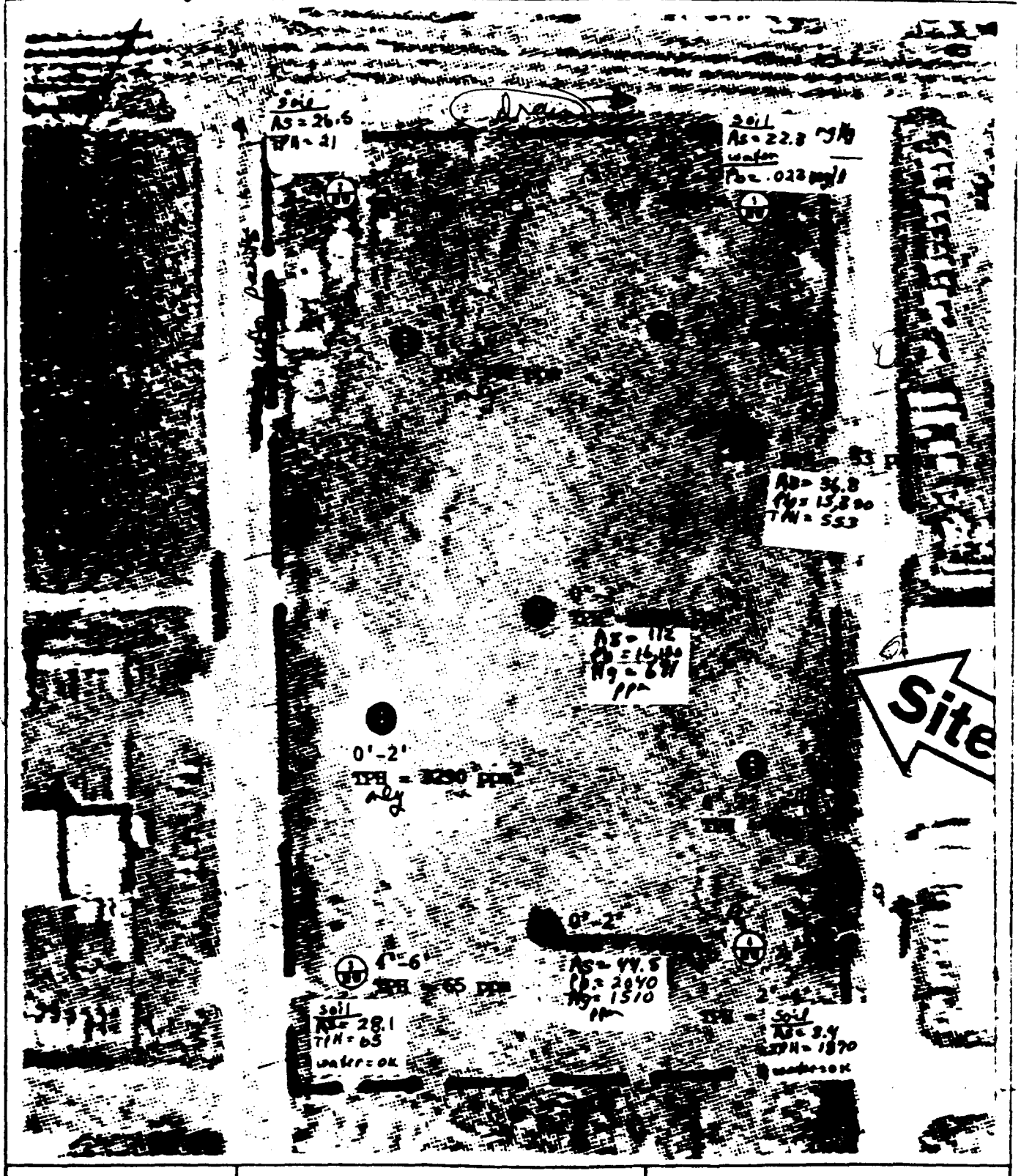


Figure No. 6.2	SOIL SAMPLE TPH RESULTS FORMER JAFFE IRON & METAL COMPANY SITE 2850 5th Avenue North Birmingham, AL	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, AL 35210
Scale: 1" = 100'		Date: Sept, 1995

TABLE 6.1
ANALYTICAL RESULTS

Parameter	Units	Media	Boring B-1	Boring B-2	Boring B-3	Well MW-1	Well MW-2	Well MW-3	Well MW-4	B-4	B-5	B-6	B-7
Soil Sample Depth			0'-2'	0'-2'	0'-2'	2'-4'	2'-4'	4'-6'	2'-4'				
Total Arsenic	mg/kg	Soil	44.5	112	36.8	22.3	26.5	28.1	8.4				
Total Barium	mg/kg	Soil	255	372	196	*	*	*	331				
Total Cadmium	mg/kg	Soil	15	40	7	*	*	*	*				
Total Chromium	mg/kg	Soil	274	239	[illegible]	22	42	72	151				
Total Lead	mg/kg	Soil	2040	[illegible]	15300	19.6	14.5	267	132				
Total Mercury	mg/kg	Soil	1516	691	436	*	*	232	*				
Total Selenium	mg/kg	Soil	*	0.6	*	*	*	*	*				
Total Silver	mg/kg	Soil	*	*	*	*	*	*	*				
Total Petroleum Hydrocarbons	mg/kg	Soil	[illegible]	4340	553	9	21	65	1870	3290	340	571	236
TCLP Arsenic	mg/kg	Soil	0.009	0.006					0.007				
TCLP Barium	mg/kg	Soil	2	2					*				
TCLP Cadmium	mg/kg	Soil	0.03	0.15					*				
TCLP Chromium	mg/kg	Soil	*	*					*				
TCLP Lead	mg/kg	Soil	*	1.66					*				
TCLP Mercury	mg/kg	Soil	*	*					*				
TCLP Selenium	mg/kg	Soil	*	*					*				
TCLP Silver	mg/kg	Soil	*	*					*				
TCLP Volatile Organics	mg/kg	Soil	*										
TCLP Semi-Volatile Organics	mg/kg	Soil	*										
Total Arsenic	mg/l	Water				*		*	*				
Total Barium	mg/l	Water				0.19		0.10	0.09				
Total Cadmium	mg/l	Water				*		*	*				
Total Chromium	mg/l	Water				*		*	*				
Total Lead	mg/l	Water				0.023		0.006	0.007				
Total Mercury	mg/l	Water	.002			*		*	*				
Total Selenium	mg/l	Water	.05			*		*	*				
Total Silver	mg/l	Water				*		*	*				
Total Benzene, Ethylbenzene, Toluene, Xylene, (BETX)	mg/l	Water				*		*	*				
Total Polynuclear Aromatic Hydro-carbons (PAH)	mg/l	Water				*		*	*				

* Below Detection Limits

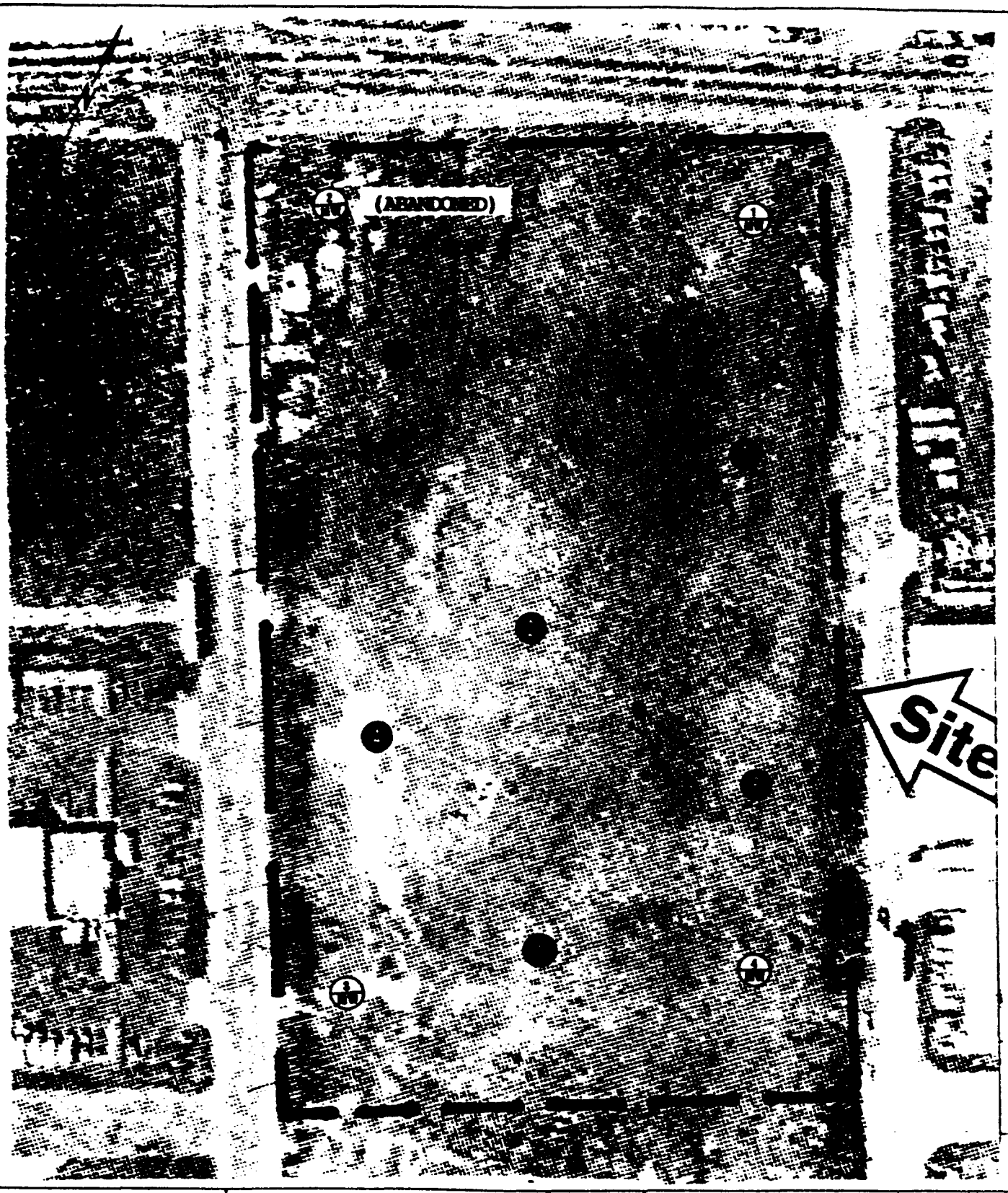


Figure No. 6.1

Soil Boring

Monitoring Well

Scale:

1" = 100'

SOIL BORING AND MONITORING WELL LOCATION MAP

FORMER JAPPE IRON & METAL COMPANY SITE
2850 5th Avenue North
Birmingham, Alabama

LAYTON ENVIRONMENTAL ENGINEERING, INC.
7960 Crestwood Blvd.
Irondale, AL 35210

Date: Sept. 1995

characteristic leachate procedure" (TCLP) test was performed on selected samples to determine if the subject soil could be classified as hazardous waste. The TCLP results indicate that leachable metals are present in the subject soil, but that these soils are not hazardous waste. [redacted] A map showing TPH sample locations, sample depths, and analytical results is shown as Figure 6.2. TCLP analysis also indicates that these soils are not hazardous waste. Laboratory results are included as Appendix B, and also shown in Table 6.1.

6.2.2 Groundwater Sampling

Three groundwater monitoring wells were installed at the locations shown in Figure 6.1. A fourth groundwater monitoring well (MW-2) was abandoned because it did not yield water. Monitoring well construction details are shown on the boring logs in Appendix B.

[redacted]. Laboratory results indicate that PAH and BETX compounds were below detectable limits within the three wells analyzed. [redacted] Total barium concentrations were above detection limits, but well within drinking water standards. All other selected metals were below detection limits. Analytical results are shown in Appendix B and also Table 6.1.

6.3 GEOTECHNICAL INVESTIGATION

During well construction activities, standard penetration tests and geotechnical soil sampling were simultaneously conducted. Standard penetration test results are recorded on the boring logs shown in Appendix B.

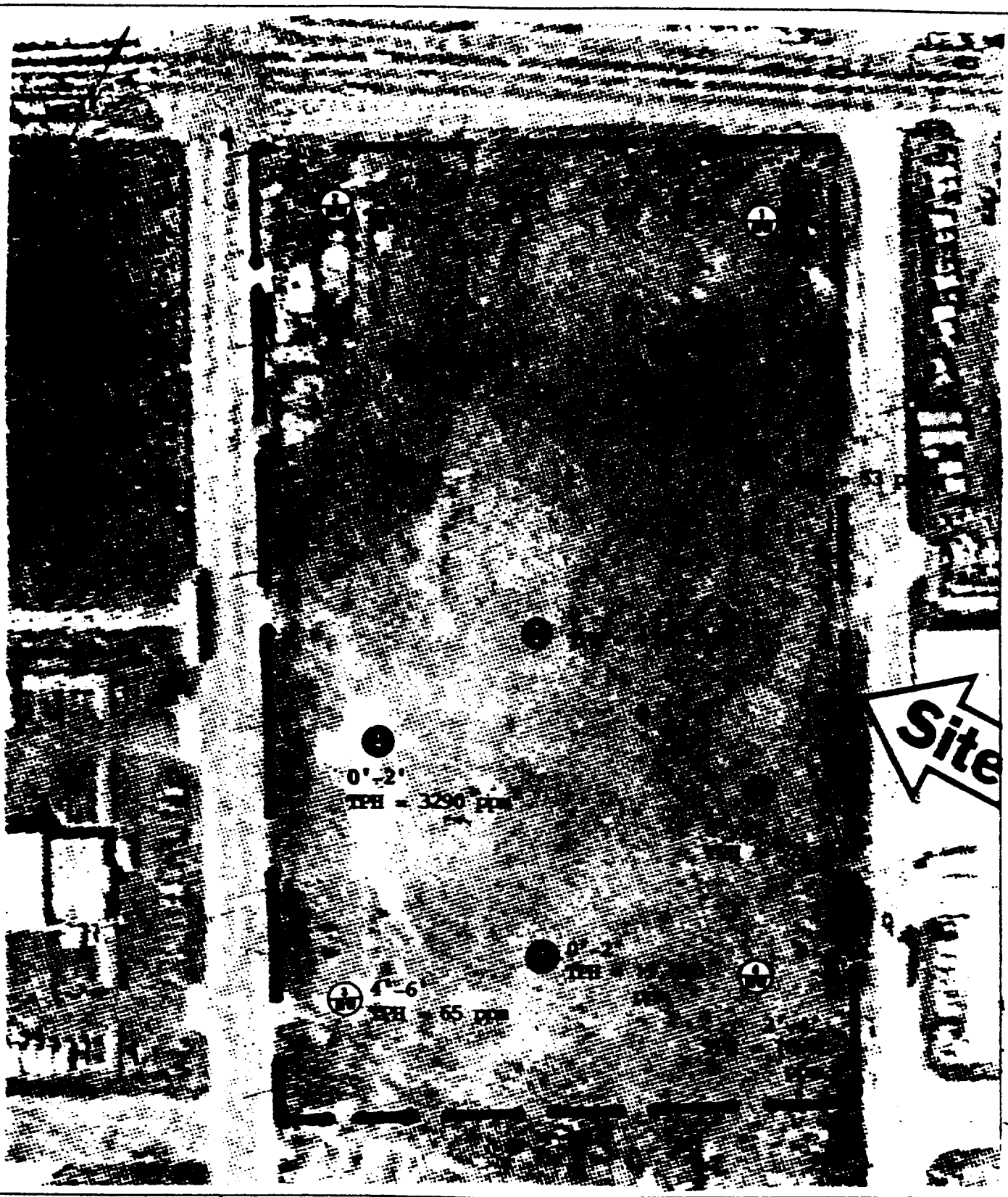


Figure No. 6.2 SB MW	SOIL SAMPLE TPH RESULTS FORMER JAPPE IRON & METAL COMPANY SITE 2850 5th Avenue North Birmingham, AL	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, AL 35210
Scale: 1" = 100'		Date: Sept, 1995

TABLE 6.1
ANALYTICAL RESULTS

Parameter	Units	Media	Boring B-1	Boring B-2	Boring B-3	Well MW-1	Well MW-2	Well MW-3	Well MW-4	B-4	B-5	B-6	B-7
Soil Sample Depth			0'-2'	0'-2'	0'-2'	2'-4'	2'-4'	4'-6'	2'-4'				
Total Arsenic	mg/kg	Soil	44.5	112	36.8	22.3	26.5	28.1	8.4				
Total Barium	mg/kg	Soil	255	372	196	*	*	*	331				
Total Cadmium	mg/kg	Soil	15	40	7	*	*	*	*				
Total Chromium	mg/kg	Soil	274	239	[illegible]	22	42	72	151				
Total Lead	[illegible]												
Total Mercury	mg/kg	Soil	[illegible]	691	436	*	*	232	*				
Total Selenium	mg/kg	Soil	*	0.6	*	*	*	*	*				
Total Silver	mg/kg	Soil	*	*	*	*	*	*	*				
Total Petroleum Hydrocarbons	mg/kg	Soil	[illegible]	4340	553	9	21	65	1870	3290	340	571	236
TCLP Arsenic	mg/kg	Soil	0.009	0.006					0.007				
TCLP Barium	mg/kg	Soil	2	2					*				
TCLP Cadmium	mg/kg	Soil	0.03	0.15					*				
TCLP Chromium	mg/kg	Soil	*	*					*				
TCLP Lead	mg/kg	Soil	*	1.66					*				
TCLP Mercury	mg/kg	Soil	*	*					*				
TCLP Selenium	mg/kg	Soil	*	*					*				
TCLP Silver	mg/kg	Soil	*	*					*				
TCLP Volatile Organics	mg/kg	Soil	*										
TCLP Semi-Volatile Organics	mg/kg	Soil	*										
Total Arsenic	mg/l	Water				*		*	*				
Total Barium	mg/l	Water				0.19		0.10	0.09				
Total Cadmium	mg/l	Water				*		*	*				
Total Chromium	mg/l	Water				*		*	*				
Total Lead	[illegible]												
Total Mercury	mg/l	Water				*		*	*				
Total Selenium	mg/l	Water				*		*	*				
Total Silver	mg/l	Water				*		*	*				
Total Benzene, Ethylbenzene, Toluene, Xylene, (BETX)	mg/l	Water				*		*	*				
Total Polynuclear Aromatic Hydro-Carbons (PAH)	mg/l	Water				*		*	*				

* Below Detection Limits

6.4 PREVIOUS UNDERGROUND FUEL TANK

Mr. Eph Mazer of Mazer Real Estate, stated that to the best of his recollection, a 3,000 gallon underground fuel tank located in the southeast corner of the property was properly closed in accordance with recommended industry practices at the time the tank was last used. At that time, the tank was pumped empty and filled with water. (This occurred prior to the promulgation of the December 22, 1988 Underground Storage Tank (UST) regulations which are currently in effect).

On June 26, 1991, Roberts Waste Oil Company pumped approximately 2,500 gallons of waste water from the subject tank, and disposed of it at the Auburn University oil plant. A receipt for t his work is shown in Appendix C. As of September, 1998, the tank is believed to be on-site, although no vent pipes nor fill pipes are visible above the surface.

A memo from the Alabama Department of Environmental Management (ADEM) is shown in Appendix C. This memo states that underground fuel tanks closed in accordance with standard industry practices prior to December 21, 1988 are not subject to current closure requirements. It should be noted that if the subject tank is present on-site, then it is empty, and may or may not currently be considered closed under current regulations.

Section 7

Conclusions

SECTION 7
CONCLUSIONS

We have performed a Phase I Environmental Site Assessment in conformance with the cope and limitations of ASTM Practice E 1527 and limited soil and groundwater analysis on the property described as 2850 5th Avenue North, Birmingham, Alabama. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the following:

- At least five feet of fill material (soil, concrete, steel, and possibly other debris), covers an estimated 85% of the site. Excavation of the concrete and steel portions of the fill may be difficult excavation.

- [redacted] Elevated metals concentrations, especially of chromium, lead, and mercury appear to be limited to the upper six feet of the site. Because this soil is not believed to be associated with hazardous waste activity nor an underground storage tanks, neither state nor federal regulations currently require it to be removed. However, some restrictions may apply if the subject soil is taken off-site for use as fill in areas of high groundwater. Mr. Jim Parker with the Alabama Department of Environmental Management (ADEM), Birmingham Field Office [(205)942-6168] stated in a September 25, 1995 telephone interview that in general, ADEM recommends and may require that all petroleum contaminated soil with TPH concentrations exceeding 1000 mg/kg be removed or remediated. Actual volumes of soil on site with TPH concentrations exceeding 1000 mg/kg is unknown, but preliminary estimates range from 3,900 c.y. (7.3 acres x 0.5' soil removed/remediated), to 47,100 c.y. (7.3 acres x 4.0' soil removal/remediated). Actual volumes may vary considerably from these estimates. Other possible regulatory requirements may include paving the area (capping it) and monitoring the groundwater, and/or risk assessment studies.

- Three groundwater monitoring wells were installed at the locations indicated on Figure 6.1. Groundwater samples from these wells were analyzed for BETX, PAH compounds and selected metals. These laboratory results indicate lead concentrations above allowable drinking water standards; but PAH and BETX concentrations below

detection limits. Also, there is petroleum contaminated soil located on site, as well as four known leaking underground storage tanks within 1/4 mile of the site. These factors may adversely effect groundwater quality at the site in the future.

- The subject site is located within an area which is prone to sinkhole development. However, no sinkholes are known to be on-site, nor in the immediate area.

- An underground fuel storage tank is believed to be present in the southeast corner of the property. This tank is believed to have been closed in accordance with industry standards prior to December 21, 1988 by removing all fuel and filling the tank with water. In June, 1991, this water was removed. No aboveground fill or vent pipes are visible. If the tank is present, it is believed to be empty, and it is unknown if the tank is currently considered closed under current ADEM regulations.

Section 8

Qualifications

CFM Layton, Inc.

SECTION 8
QUALIFICATIONS

This report was prepared exclusively for use by Leitman, Siegal, Payne & Campbell, P.C. Our evaluation of environmental conditions at this site is based on available information and data obtained during records research and field study as described within. These services have been performed in accordance with generally accepted standards of performance for this level of assessment. Our conclusions are based upon the limited amount of soil and groundwater data obtained during this study and the conditions that existed during this time of the study.

CFM Layton, Inc. is not responsible for the conclusions or opinions made by others based on the findings of this report or for the work performed by other consulting firms in the development of this report.

Appendix A

Environmental Site Assessment
Former Birmingham Hide & Tallow Site

AVAILABLE UPON REQUEST

CFM LAYTON, INC.

Appendix B

Laboratory Results, Boring Logs, and Well Construction Date

STILLBROOK

Lab Invoice #: 6306

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 21, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: DL
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. 7000 Series Method.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 15-20, 1995

TCLP METALS

Lab I.D.:	32828	32826						Detection Limit
Field I.D.:	MW-4, 2'-4'	B-2, 0'-2'						
PARAMETERS	PPM (mg/L)	PPM (mg/L)						PPM (mg/L)
Arsenic	0.007	0.006						0.005
Barium	BDL	2						1
Cadmium	BDL	0.15						0.02
Chromium	BDL	BDL						0.02
Lead	BDL	1.66						0.02
Mercury	BDL	BDL						0.001
Selenium	BDL	BDL						0.005
Silver	BDL	BDL						0.02

Detection limit, practical
BDL = Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Lab Invoice #: 6306

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 21, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: DL
Test Method: SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. 7000 Series Method.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 15, 1995

8 RCRA METALS

Lab I.D.:	32825	32826	32827	32828	32829	32830	32831	Detection Limit
Field I.D.:	B-3, 0'-2'	B-2, 0'-2'	B-1, 0'-2'	MW-4, 2'-4'	MW-2, 2'-4'	MW-1, 2'-4'	MW-3, 4'-6'	
PARAMETERS	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)	PPM (mg/kg)
Arsenic	36.8	112	44.5	8.4	26.5	22.3	28.1	0.5
Barium	196	372	255	331	BDL	BDL	BDL	100
Cadmium	7	40	15	BDL	BDL	BDL	BDL	2
Chromium	1440	239	274	151	42	22	72	2
Lead	15300	16100	2040	132	14.5	19.6	267	0.5
Mercury	0.4	0.7	1.5	BDL	BDL	BDL	0.2	0.1
Selenium	BDL	0.6	BDL	BDL	BDL	BDL	BDL	0.5
Silver	BDL	BDL	BDL	BDL	BDL	BDL	BDL	2

Detection limit, practical
BDL = Below Detection Limit

Respectfully submitted,

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6306

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 21, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: JWB
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83 Method 418.1.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 12, 1995

TOTAL PETROLEUM HYDROCARBONS

Lab I.D.	Field I.D.	TPH, mg/kg
32825	B-3, 0'-2'	553
32826	B-2, 0'-2'	4340
32827	B-1, 0'-2'	19000
32828	MW-4, 2'-4'	1870
32829	MW-2, 2'-4'	21
32830	MW-1, 2'-4'	9
32831	MW-3, 4'-6'	65

Detection Limit = 1 mg/kg

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc.
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: DL
Test Method: "Methods for Chemical Analysis of Water and Wastes", EPA-600/3-83.

Project Number: N/A
P.O Number: N/A
Date Collected: September 18, 1995
Analysis Date: September 21, 1995

8 RCRA METALS

Lab I.D.:	32901	32902	32903				Detection Limit	Method Reference
Field I.D.:	MW-1	MW-2	MW-3					
PARAMETERS	PPM (mg/L)	PPM (mg/L)	PPM (mg/L)				PPM (mg/L)	NUMBER
Arsenic	BDL	BDL	BDL				0.005	206.2
Barium	0.19	0.10	0.09				0.05	208.2
Cadmium	BDL	BDL	BDL				0.02	213.1
Chromium	BDL	BDL	BDL				0.02	218.1
Lead	0.023	0.006	0.007				0.005	239.2
Mercury	BDL	BDL	BDL				0.001	245.1
Selenium	BDL	BDL	BDL				0.005	270.2
Silver	BDL	BDL	BDL				0.02	272.1

Detection limit, practical
BDL = Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc.
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83. Method 610/625.

Project Number: N/A
P.O Number: N/A
Date Collected: September 18, 1995
Analysis Date: September 20, 1995

POLYNUCLEAR AROMATIC HYDROCARBONS

Lab I.D.:	32895	32896	32897					Detection Limit
Field I.D.:	MW-1	MW-3	MW-4					
PARAMETERS	ug/L (PPB)	ug/L (PPB)	ug/L (PPB)					ug/L (PPB)
Acenaphthene	BDL	BDL	BDL					10
Acenapthylene	BDL	BDL	BDL					10
Anthracene	BDL	BDL	BDL					10
Benzo(a)anthracene	BDL	BDL	BDL					10
Benzo(a)pyrene	BDL	BDL	BDL					10
Benzo(b)fluoranthene	BDL	BDL	BDL					10
Benzo(g,h,i)perylene	BDL	BDL	BDL					10
Benzo(k)fluoranthene	BDL	BDL	BDL					10
Chrysene	BDL	BDL	BDL					10
Dibenzo(a,h)anthracene	BDL	BDL	BDL					10
Fluoranthene	BDL	BDL	BDL					10
Fluorene	BDL	BDL	BDL					10
Indeno(1,2,3-cd)pyrene	BDL	BDL	BDL					10
Naphthalene	BDL	BDL	BDL					10
Phenanthrene	BDL	BDL	BDL					10
Pyrene	BDL	BDL	BDL					10

BDL = Below Detection Limit
Detection limit, practical

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc.
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: Methods for Chemical Analysis of Water & Wastes, EPA-600/3-83. Method 602/624.

Project Number: N/A
P.O Number: N/A
Date Collected: September 18, 1995
Analysis Date: September 20, 1995

PURGEABLE AROMATIC HYDROCARBONS

Lab I.D.:	32898	32899	32900					Detection Limit
Field I.D.:	MW-1	MW-3	MW-4					
PARAMETERS	ug/L(PPB)	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Benzene	BDL	BDL	BDL					5
Toluene	BDL	BDL	BDL					5
Ethylbenzene	BDL	BDL	BDL					5
Xylenes	BDL	BDL	BDL					5

Detection limit, practical
BDL = Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Number: N/A
Project Location: 5th Ave. South, B'ham
P.O Number: N/A
Sample Matrix: Soil
Sampled By: Allen McLemore
Date Collected: September 11, 1995
Lab Analyst: SJ
Analysis Date: September 29, 1995
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 8260.

TCLP VOLATILES

Lab I.D.:	32977							Detection Limit
Field I.D.:	B-1, 0'-2'							
PARAMETERS	PPM (mg/L)							PPM (mg/L)
Vinyl Chloride	BDL							0.005
1,1-Dichloroethylene	BDL							0.005
2-Butanone (MEK)	BDL							0.1
Chloroform	BDL							0.005
Carbon Tetrachloride	BDL							0.005
Benzene	BDL							0.005
1,2-Dichloroethane	BDL							0.005
Trichloroethylene	BDL							0.005
Chlorobenzene	BDL							0.005
1,4-Dichlorobenzene	BDL							0.005

BDL = Below Detection Limit

Detection limit, practical

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBRO)K

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 8270.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 29, 1995

TCLP SEMI-VOLATILES

Lab I.D.:	32977							Detection Limit
Field I.D.:	B-1, 0'-2'							
PARAMETERS	PPM (mg/L)							PPM (mg/L)
Pyridine	BDL							0.05
1,4-Dichlorobenzene	BDL							0.05
Cresols (o,m,p)	BDL							0.05
Hexachloroethane	BDL							0.05
Nitrobenzene	BDL							0.05
Hexachlorobutadiene	BDL							0.05
2,4,6-Trichlorophenol	BDL							0.05
2,4,5-Trichlorophenol	BDL							0.25
2,4-Dinitrotoluene	BDL							0.05
Hexachlorobenzene	BDL							0.05
Pentachlorophenol	BDL							0.05

BDL = Below Detection Limit
Detection limit, practical

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: DL
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. 7000 Series Method.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 27, 1995

TCLP METALS

Lab I.D.:	32977							Detection Limit
Field I.D.:	B-1, 0'-2'							
PARAMETERS	PPM (mg/L)							PPM (mg/L)
Arsenic	0.009							0.005
Barium	2							1
Cadmium	0.03							0.02
Chromium	BDL							0.02
Lead	BDL							0.02
Mercury	BDL							0.001
Selenium	BDL							0.005
Silver	BDL							0.02

Detection limit, practical
BDL = Below Detection Limit

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6407

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 29, 1995

Project Name: Kimmerling Estate
Project Location: 5th Ave. N., B'ham
Sample Matrix: Soil
Sampled By: ABM
Lab Analyst: JWB
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83 Method 418.1.

Project Number: ABM
P.O Number: N/A
Date Collected: September 27, 1995
Analysis Date: September 28, 1995

TOTAL PETROLEUM HYDROCARBONS

Lab I.D.	Field I.D.	TPH, mg/kg
33040	B-4, 0'-2'	3290
33041	B-5, 0'-2'	340
33042	B-6, 0'-2'	571
33043	B-7, 0'-2'	236

Detection Limit = 1 mg/kg

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Lab Invoice #: 6345

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83. Method 610/625.

Project Number: N/A
P.O Number: N/A
Date Collected: September 18, 1995
Analysis Date: September 20, 1995

POLYNUCLEAR AROMATIC HYDROCARBONS

Lab I.D.:	32895	32896	32897					Detection Limit
Field I.D.:	MW-1	MW-3	MW-4					
PARAMETERS	ug/L (PPB)	ug/L (PPB)	ug/L (PPB)					ug/L (PPB)
Acenaphthene	BDL	BDL	BDL					10
Acenapthylene	BDL	BDL	BDL					10
Anthracene	BDL	BDL	BDL					10
Benzo(a)anthracene	BDL	BDL	BDL					10
Benzo(a)pyrene	BDL	BDL	BDL					10
Benzo(b)fluoranthene	BDL	BDL	BDL					10
Benzo(g,h,i)perylene	BDL	BDL	BDL					10
Benzo(k)fluoranthene	BDL	BDL	BDL					10
Chrysene	BDL	BDL	BDL					10
Dibenzo(a,h)anthracene	BDL	BDL	BDL					10
Fluoranthene	BDL	BDL	BDL					10
Fluorene	BDL	BDL	BDL					10
Indeno(1,2,3-cd)pyrene	BDL	BDL	BDL					10
Naphthalene	BDL	BDL	BDL					10
Phenanthrene	BDL	BDL	BDL					10
Pyrene	BDL	BDL	BDL					10

BDL = Below Detection Limit
Detection limit, practical

Respectfully submitted,

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site, 5th Ave. N., Bham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: Methods for Chemical Analysis of Water & Wastes, EPA-600/3-83. Method 602/624.

Project Number: N/A
P.O Number: N/A

Date Collected: September 18, 1995
Analysis Date: September 21, 1995

PURGEABLE AROMATIC HYDROCARBONS

Lab I.D.:	32898	32899	32900					Detection Limit
Field I.D.:	MW-1	MW-3	MW-4					
PARAMETERS	ug/L(PPB)	ug/L(PPB)	ug/L(PPB)					ug/L(PPB)
Benzene	BDL	BDL	BDL					5
Toluene	BDL	BDL	BDL					5
Ethylbenzene	BDL	BDL	BDL					5
Xylenes	BDL	BDL	BDL					5

Detection limit, practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.

305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
Sample Matrix: Water
Sampled By: Allen McLemore
Lab Analyst: DL
Test Method: "Methods for Chemical Analysis of Water and Wastes", EPA-600/3-83.

Project Number: N/A
P.O Number: N/A
Date Collected: September 18, 1995
Analysis Date: September 21, 1995

8 RCRA METALS

Lab I.D.:	32901	32902	32903				Detection Limit	Method Reference
Field I.D.:	MW-1	MW-2	MW-3					
PARAMETERS	PPM (mg/kg)	PPM (mg/L)	PPM (mg/L)				PPM (mg/L)	NUMBER
Arsenic	BDL	BDL	BDL				0.005	206.2
Barium	0.19	0.10	0.09				0.05	208.2
Cadmium	BDL	BDL	BDL				0.02	213.1
Chromium	BDL	BDL	BDL				0.02	218.1
Lead	0.023	0.006	0.007				0.005	239.2
Mercury	BDL	BDL	BDL				0.001	245.1
Selenium	BDL	BDL	BDL				0.005	270.2
Silver	BDL	BDL	BDL				0.02	272.1

Detection limit, practical
BDL=Below Detection Limit

Respectfully submitted.

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.

305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Number: N/A
Project Location: 5th Ave. South, B'ham
P.O Number: N/A
Sample Matrix: Soil
Sampled By: Allen McLemore
Date Collected: September 11, 1995
Lab Analyst: DL
Analysis Date: September 27, 1995
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86, 7000 Series Method

TCLP METALS

Lab I.D.:	32977							Detection Limit
Field I.D.:	B-1, 0'-2'							
PARAMETERS	PPM (mg/L)							PPM (mg/L)
Arsenic	0.009							0.005
Barium	2							1
Cadmium	0.03							0.02
Chromium	BDL							0.02
Lead	BDL							0.02
Mercury	BDL							0.001
Selenium	BDL							0.005
Silver	BDL							0.02

Detection limit practical
BDL=Below Detection Limit

Respectfully submitted,

John T. Brooks

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: SJ
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86, Method 8260.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 29, 1995

TCLP VOLATILES

Lab I.D.: / **Field I.D.:**	32977 B-1, 0'-2'							**Detection Limit**
PARAMETERS	**PPM (mg/L)**							**PPM (mg/L)**
Vinyl Chloride	BDL							0.005
1,1-Dichloroethylene	BDL							0.005
2-Butanone (MEK)	BDL							0.1
Chloroform	BDL							0.005
Carbon Tetrachloride	BDL							0.005
Benzene	BDL							0.005
1,2-Dichloroethane	BDL							0.005
Trichloroethylene	BDL							0.005
Chlorobenzene	BDL							0.005
1,4-Dichlorobenzene	BDL							0.005

BDL = Below Detection Limit

Detection limit, practical

Respectfully submitted,

John T. Brooks

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Number: N/A
Project Location: 5th Ave. South, B'ham
P.O Number: N/A
Sample Matrix: Soil
Sampled By: Allen McLemore
Date Collected: September 11, 1995
Lab Analyst: SJ
Analysis Date: September 29, 1995
Test Method: TCLP Extraction "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 8270.

TCLP SEMI-VOLATILES

Lab I.D.:	32977							Detection Limit
Field I.D.:	B-1, 0'-2'							
PARAMETERS	PPM (mg/L)							PPM (mg/L)
Pyridine	BDL							0.05
1,4-Dichlorobenzene	BDL							0.05
Cresols (o,m,p)	BDL							0.05
Hexachloroethane	BDL							0.05
Nitrobenzene	BDL							0.05
Hexachlorobutadiene	BDL							0.05
2,4,6-Trichlorophenol	BDL							0.05
2,4,5-Trichlorophenol	BDL							0.25
2,4-Dinitrotoluene	BDL							0.05
Hexachlorobenzene	BDL							0.05
Pentachlorophenol	BDL							0.05

BDL = Below Detection Limit
Detection limit, practical

Respectfully submitted,

John T. Brooks

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.

CHAIN OF CUSTODY

LAB INVOICE # 6306

CLIENT: Layton Environmental
7960 Crestwood Blvd.
Irondale AL 35210

Contact: Allen McLemore Phone: 951-3700

Date Received: 9-11-95 Date Results Needed: ASAP!!!

Send Invoice to: Allen McLemore P.O.#: ABM

Special Instructions:

☒ Phone Results to: Allen at 951-3700

☐ FAX Results to: _____ at _____

PROJECT NAME: Kimerling Estate

PROJECT LOC: 5th Ave South, B'ham

PROJECT #: P.O. #:

SAMPLER: Allen McLemore SAMPLE DATE:

LAB I.D.	FIELD I.D.	MATRIX	DATE	TIME	# BTL	TPH	total RCRA metals	TCLP Metals				
32825	B-3, 0'-2'	Soil	9-11-95	PM	1		X					
32825	B-3, 0'-2'	Soil	9-11-95	PM	1	X						
32826	B-2, 0'-2'	Soil	9-11-95	PM	1	X						
32826	B-2, 0'-2'	Soil	9-11-95	PM	1		X					
32827	B-1, 0'-2'	Soil	9-11-95	PM	1		X					
32827	B-1, 0'-2'	Soil	9-11-95	PM	1	X						
32828	MW-4, 2'-4'	Soil	9-11-95	PM	1	X						
32828	MW-4, 2'-4'	Soil	9-11-95	PM	1		X	X				
32829	MW-2, ~~4'-6'~~ 2'-4'	Soil	9-11-95	PM	1	X						
32829	MW-2, ~~4'-6'~~ 2'-4'	Soil	9-11-95	PM	1		X					
32830	MW-1, 2'-4'	Soil	9-11-95	PM	1	X						
32830	MW-1, 2'-4'	Soil	9-11-95	PM	1		X					
32831	MW-3, 4'-6'	Soil	9-11-95	PM	1	X						
32831	MW-3, 4'-6'	Soil	9-11-95	PM	1		X					

Indicate Preservative by Letter: Metals use HNO3 Nitric Acid

BTEX use HCL Hydrochloric Acid + 0.008% Sodium Thiosulfate

Semi-Vol Organics use 0.008% Sodium Thiosulfate

H2SO4 Sulfuric Acid Sulfide use ZnOH3 Zinc Acetate

CN use NaOH Sodium Hydroxide &—if needed—OOH2 Ascorbic Acid

Comments:

RELINQUISHED BY	DATE/TIME	RECEIVED BY
SIGNATURE: Allen McLemore	Date: 9-11-95	SIGNATURE: Ava Salter
PRINT NAME: Allen McLemore	Time(24hr): 16:09	PRINT NAME: Ava Salter
RELINQUISHED BY	DATE/TIME	RECEIVED BY
SIGNATURE	Date:	SIGNATURE:
PRINT NAME	Time(24hr)	PRINT NAME:

305 Crawford Street Fairfield, AL 35064 Phone: 205-788-1750 FAX: 205-788-1747

INV. # 6345

CHAIN OF CUSTODY AND REQUEST FOR ANALYSIS

Project No.	Project Name: Kimerling Estate
Sampler's Name (please print):	Allen McLemore
Sampler's Signature:	Allen McLemore
Facility Location:	Former JeFee Metals Site 5th Ave. N. B'ham

Sample No.	Date	Time	Comp	Grab	Sample Location	Containers: Type & Size	No.	Analysis Requested: P.A.H.	BETX	Total RCRA Metals	Preservative: $Na_2S_2O_3$	HCl	REMARKS
32895	9-18-95	PM		X	MW-1	Qt. Glass	1	X					
32896	9-18-95	PM		X	MW-3	Qt. Glass	1	X					
32897	9-18-95	PM		X	MW-4	Qt. Glass	1	X					
32898	9-18-95	PM		X	MW-1	VOC Vial	2		X				
32899	9-18-95	PM		X	MW-3	VOC Vial	2		X				
32900	9-18-95	PM		X	MW-4	VOC Vial	2		X				
32901	9-18-95	PM		X	MW-1	250 mL Plastic	1			X			
32902	9-18-95	PM		X	MW-3	250 mL Plastic	1			X			
32903	9-18-95	PM		X	MW-4	250 mL Plastic	1			X			

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Received at Lab by: (Signature)
Allen McLemore	9-18-95 16:35	Lou Tuttle			

Mail Report To: Company & Address:	Billing Address:	
LAYTON Env. Eng.	7960 Crestwood Blvd. Irondale 35210	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, Alabama 35210

STILLBROOK

Environmental Testing Laboratory, Inc.

CHAIN OF CUSTODY

LAB INVOICE # 6387

CLIENT: LAYTON ENVIRONMENTAL

Date Received: Date Results Needed:

Send Invoice to: P.O.#:

Special Instructions:

☒ Phone Results to: ALAN at ____ - ____

☐ FAX Results to: ____ at ____ - ____

Contact: Phone:

SAMPLE IDENTIFICATION						PARAMETERS
PROJECT NAME:						
PROJECT LOC:						
PROJECT #:		P.O. #:				
SAMPLER:		SAMPLE DATE:				
LAB ID	FIELD I.D.	MATRIX	DATE	TIME	# BTL	FULL TCLP (NO ASBESTOS)
32977	BORING B-1 0-2'	S				X
	(COMBINE SAMPLE 32827					
						VERBAL PER ALAN

Indicate Preservative by Letter:

Metals use HNO3 Nitric Acid

BTEX use HCL Hydrochloric Acid + 0.008% Sodium Thiosulfate

Semi-Vol Organics use 0.008% Sodium Thiosulfate

H2SO4 Sulfuric Acid Sulfide use ZnOH3 Zinc Acetate

CN use NaOH Sodium Hydroxide &—if needed—OOH2 Ascorbic Acid

Sample Preservative						

Comments:

RELINQUISHED BY	DATE/TIME	*RECEIVED BY*
SIGNATURE:	Date: 9/25/95	SIGNATURE: Lary Tuck
PRINT NAME:	Time(24hr) 10:00	PRINT NAME:
RELINQUISHED BY	DATE/TIME	*RECEIVED BY*
SIGNATURE:	Date:	SIGNATURE:
PRINT NAME:	Time(24hr)	PRINT NAME:

305 Crawford Street Fairfield, AL 35064 Phone: 205-788-1750 FAX: 205-788-1747

STILLBROOK

Environmental Testing Laboratory, Inc.

CHAIN OF CUSTODY

LAB INVOICE # 6407

CLIENT: Layton Environmental
7960 Crestwood Blvd.
Irondale AL 35210

Contact: Allen McLemore Phone: (205)951-3700

Date Received: 9-27-95 Date Results Needed: ASAP - Friday

Send Invoice to: Allen McLemore P.O.#:

Special Instructions:

☐ Phone Results to: Allen at 205-951-3700

☒ FAX Results to: Allen at 205-951-5544

PROJECT NAME: Kimmerling Estate

PROJECT LOC: 5th Ave. N., B'ham

PROJECT #:

P.O. #: ABM

SAMPLER: ABM

SAMPLE DATE: 9-27-95

LAB I.D.	FIELD I.D.	MATRIX	DATE	TIME	# BTL	PARAMETERS: TPH
33040	B-4, 0'-2'	Soil	9-27-95	PM	1	X
33041	B-5, 0'-2'	Soil	9-27-95	PM	1	X
33042	B-6, 0'-2'	Soil	9-27-95	PM	1	X
33043	B-7, 0'-2'	Soil	9-27-95	PM	1	X

Indicate Preservative by Letter:

Metals use HNO3 Nitric Acid

BTEX use HCL Hydrochloric Acid + 0.008% Sodium Thiosulfate

Semi-Vol Organics use 0.008% Sodium Thiosulfate

H2SO4 Sulfuric Acid

Sulfide use ZnOH3 Zinc Acetate

CN use NaOH Sodium Hydroxide &--if needed--OOH2 Ascorbic Acid

Lab #	Sample Preservative
33040	ICE

Comments: Would like results by Friday 9-29-95 or sooner - Thanks

RELINQUISHED BY	DATE/TIME	RECEIVED BY
SIGNATURE: Allen McLemore	Date: 9-27-95	SIGNATURE: Ava Salter
PRINT NAME: Allen McLemore	Time(24hr) 15:32	PRINT NAME: Ava Salter

RELINQUISHED BY	DATE/TIME	RECEIVED BY
SIGNATURE	Date:	SIGNATURE:
PRINT NAME	Time(24hr)	PRINT NAME:

305 Crawford Street Fairfield, AL 35064 Phone: 205-788-1750 FAX: 205-788-1747

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6306

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 21, 1995

Project Name: Kimberling Estate
Project Number: N/A
Project Location: 5th Ave. South, B'ham
P.O Number: N/A
Sample Matrix: Soil
Sampled By: Allen McLemore
Date Collected: September 11, 1995
Lab Analyst: JWB/DL
Analysis Date: September 12-20, 1995
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83 Method 418.1.
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 7421.
TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 7421.

QUALITY CONTROL DATA

ERA TPH Reference Control Lot #91029-1

Assayed: 745 mg/kg
Range: 590-1040 mg/kg

Lab Blank: 9-12-94 = Below Detection Limit
Lab Duplicate: 9-12-94 = 8% RPD
Lab Spike: 9-12-94 = 95% Recovery

ERA Metals Reference Control Lot #9963

Lead Assayed: 94.6 ug/L
Range: 75.1-108 ug/L

ERA Metals Reference Control Lot #9963

Lead Assayed: 98.4 ug/L
Range: 75.1-108 ug/L

Respectfully submitted,

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6337

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 21, 1995

Project Name: Shredders' Proposed Cullman R.R. Siding
Project Number: N/A
Project Location: Cullman, Ala.
P.O Number: N/A
Sample Matrix: Soil
Sampled By: Allen McLemore
Date Collected: September 18, 1995
Lab Analyst: JWB/DL
Analysis Date: September 18-20, 1995
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83 Method 418.1.
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 7421.

QUALITY CONTROL DATA

ERA TPH Reference Control Lot #91029-1

Assayed: 650 mg/kg
Range: 590-1040 mg/kg

Lab Blank: 9-18-94 = Below Detection Limit
Lab Duplicate: 9-18-94 = 3% RPD
Lab Spike: 9-18-94 = 91% Recovery

ERA Metals Reference Control Lot #9963

Lead Assayed: 94.4 ug/L
Range: 75.1-108 ug/L

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6345

Client: Mr. Allen McLemore
Layton Environmental Engineering, Inc.
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 22, 1995

Project Name: Kimerling Estate
Project Number: N/A
Project Location: Former Jafee Metals Site/5th Ave. N., B'ham
P.O Number: N/A
Sample Matrix: Water
Sampled By: Allen McLemore
Date Collected: September 18, 1995
Lab Analyst: SJ/DL
Analysis Date: September 20-21, 1995
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83. Method 602/624; 610/625; 239.2.

QUALITY CONTROL DATA

Ultra AMM-802

	Assayed	True	Range	Units
Benzene:	18.7	20	12.8-27.2	ug/L
Toluene:	19.8	20	14.9-25.1	ug/L
Ethylbenzene:	18.9	20	11.8-28.2	ug/L
Xylenes:	19.5	20	10.0-30.0	ug/L
Surrogate:				
Toluene-d8	49	50	44-55	ug/L

Ultra PM-610

	Assayed	True	Range	Units
Naphthalene:	19	20	8-24	ug/L
Fluorene:	19	20	8-24	ug/L
Anthracene:	19	20	5-26	ug/L
Benzo(a)anthracene:	21	20	8-24	ug/L
Surrogate:				
2-Fluorobiphenyl	20	20	8-24	ug/L

ERA Reference Control For Metals Lot #9963
Lead Assayed: 98.4 ug/L **Range:** 75.1-108 ug/L

Respectfully submitted,

John T. Brooks
President

ADEM Laboratory Certification I.D.# 40710

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6407

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: September 29, 1995

Project Name: Kimmerling Estate
Project Location: 5th Ave. N., B'ham
Sample Matrix: Soil
Sampled By: ABM
Lab Analyst: JWB
Project Number: ABM
P.O Number: N/A
Date Collected: September 27, 1995
Analysis Date: September 28, 1995
Test Method: "Methods for Chemical Analysis of Water & Wastes", EPA-600/3-83. Method 418.1.

QUALITY CONTROL DATA

ERA TPH Reference Control Lot #91029-1

Assayed: 828 mg/kg

Range: 590-1040 mg/kg

Lab Blank: 9-28-95 = Below Detection Limit
Lab Duplicate: 9-28-95 = 5% RPD
Lab Spike: 9-28-95 = 90% Recovery

Respectfully submitted,

John T. Brooks
President

STILLBROOK

Environmental Testing Laboratory, Inc.
305 Crawford Street
Fairfield, AL 35064
(205) 788-1750

Lab Invoice #: 6388

Client: Mr. Allen McLemore
Layton Environmental Engineering
7960 Crestwood Boulevard
Irondale, AL 35210

Date: October 2, 1995

Project Name: Kimberling Estate
Project Location: 5th Ave. South, B'ham
Sample Matrix: Soil
Sampled By: Allen McLemore
Lab Analyst: SJ/DL
Test Method: TCLP Extraction: "40CFR261 app 2 Method 1311"
SW846 "Test Methods for Evaluating Solid Waste" 3rd Edition, 11/86. Method 8260/8270. Method 7421.

Project Number: N/A
P.O Number: N/A
Date Collected: September 11, 1995
Analysis Date: September 27-29, 1995

QUALITY CONTROL DATA

Volatile Control-Ultra TCLP 500

	Assayed	Range	Units
1,4-Dichlorobenzene:	104	63-137	ug/L
1,2-Dichloroethane:	100	68-132	ug/L
Carbon Tetrachloride:	117	73-127	ug/L
Benzene:	105	64-136	ug/L
Surrogate:			
Toluene-d8 :	44	44-55	ug/L

Semi-Volatile Control-Ultra TCLP 511, 520

	Assayed	Range	Units
Pyradine:	53	25-60	mg/L
Nitrobenzene:	55	27-79	mg/L
2,4,6-Trichlorophenol:	52	26-65	mg/L
2,4-Dinitrotoluene:	43	24-64	mg/L
Surrogate:			
Nitrobenzene-d5:	19	8-24	mg/L

ERA Metals Reference Control Lot #9963

Lead Assayed: 99.2 ug/L **Range:** 75.1-108 ug/L

Respectfully submitted,

John T. Brooks
President

LAYTON ENVIRONMENTAL ENGINEERING, INC.
7960 Crestwood Blvd.
Irondale, AL 35210

PROJECT NUMBER

BORING NUMBER MW-1 SHEET 1 OF 1

BORING LOG

PROJECT Kimerling Estate DRILLING CONTRACTOR Alabama Environ. Drilling
BORING LOCATION MW-1, 50' West of 29th St., 50' South of Messer-Airport (5th Ave.)
DRILLING METHOD AND EQUIPMENT Hollow Stem Auger, Split Spoon
DEPTH TO WATER: _____ DATE: 9-11-95 START 9:15 AM FINISH 10:21 AM LOGGER ABM

ELEVATION / DEPTH BELOW SURFACE	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	REC	PID PEAK/AVG.	STANDARD PENETRATION TEST RESULTS (N)	SYMBOLIC LOG	SOIL DESCRIPTION / COMMENTS (NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL)	MONITORING WELL CONSTRUCTION DETAILS
		SS-1	10"	NA	17-13-8-4 (12)		Broken Asphalt, Gravel and Soil (FILL)	
		SS-2	8"	Env. Sample	4-4-3-3(6)		Reddish-brown and tan mottled silty clay (RESIDUUM)	
5		SS-3	15"	NA	1-1-1-1(2)		Soft, moist, trace chert	
		SS-4	18"	NA	3-1-2-1(3)		Saturated	
		SS-5	12"	NA	4-3-6-5(11)		Grey clayey silt with trace manganese	
10							Reddish-brown, tan, and grey mottled silty clay	
15		SS-6	18"	NA	14-16-9-30 (39)		Trace manganese rock at 17'	
							Terminated at 17'	
20								
25								

▼ WATER LEVEL

GROUT
BENTONITE PELLETS
GRADED SAND

PVC RISER
PVC SCREEN

LAYTON ENVIRONMENTAL ENGINEERING, INC.
7960 Crestwood Blvd.
Irondale, AL 35210

PROJECT NUMBER

BORING NUMBER MW-2

SHEET 1 OF 1

BORING LOG

PROJECT Kimerling Estate

DRILLING CONTRACTOR Alabama Environ. Drilling

BORING LOCATION MW-2, 50' East of 28th St., 70' South of Messer-Airport (5th Ave.)

DRILLING METHOD AND EQUIPMENT Hollow Stem Auger and Split Spoon

DEPTH TO WATER: _____ DATE: 9-11-95 START 10:22 FINISH 11:45 LOGGER ABM

ELEVATION	DEPTH BELOW SURFACE	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	REC	PID PEAK/AVG.	STANDARD PENETRATION TEST RESULTS (N)	SYMBOLIC LOG	SOIL DESCRIPTION / COMMENTS (NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL)	MONITORING WELL CONSTRUCTION DETAILS
	0		SS-1	10"	NA	9-8-5-4(9)		Broken brick, gravel and soil (FILL)	Well MW-2 did not yield water -- abandoned.
			SS-2	16"	Env. Sample	4-3-5-6(11)		Reddish-brown silty clay (FILL)	
	5		SS-3	17"	NA	7-8-9-11(20)		Reddish-brown and tan mottled silty clay (RESIDUUM)	
			SS-4	18"	NA	9-8-9-11(20)		Firm, trace manganese, limestone	
			SS-5	18"	NA	5-8-8-8(16)			
	10								
	15		SS-6		NA	8-9-12-12 (24)		Rock	
								Auger refusal at 17.5'	
	20							Boring appears to be dry 3 hours after drilling	
	25								

▼ WATER LEVEL

GROUT
BENTONITE PELLETS
GRADED SAND

PVC RISER
PVC SCREEN

LAYTON ENVIRONMENTAL ENGINEERING, INC.

7960 Crestwood Blvd.
Irondale, AL 35210

PROJECT NUMBER

BORING NUMBER MW-3 SHEET 1 OF 1

BORING LOG

PROJECT Kimerling Estate DRILLING CONTRACTOR Alabama Environ. Drilling

BORING LOCATION NW-3, 50' East of 29th St., 300' North of SW property corner

DRILLING METHOD AND EQUIPMENT Hollow Stem Auger and Split Spoon

DEPTH TO WATER: _____ DATE: 9-11-95 START 12:43 FINISH 1:37 LOGGER ABM

ELEVATION	DEPTH BELOW SURFACE	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	SAMPLE REC	SAMPLE PID PEAK/AVG.	STANDARD PENETRATION TEST RESULTS (N)	SYMBOLIC LOG	SOIL DESCRIPTION/COMMENTS (NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL)	MONITORING WELL CONSTRUCTION DETAILS
			SS-1	10"	NA	13-5-9-11 (20)		Gravel, broken concrete, asphalt, red clay (FILL)	
			SS-2	10"	NA	5-6-6-7(13)		glass, less asphalt	
	5		SS-3	15"	NA	4-4-6-8(14)		Reddish-brown and dark brown clayey silt (FILL)	
			SS-4	18"	NA	5-4-3-5(8)		Grey, reddish-brown, and tan mottled clayey silt with trace manganese (RESIDUUM)	
			SS-5	18"	NA	3-3-4-4(8)			
	10							Moist	
	15		SS-6	22"	NA	4-5-8-9(17)		Rock	
								Auger refusal at 18'	
	20								
	25								

▼ WATER LEVEL

GROUT
BENTONITE PELLETS
GRADED SAND

PVC RISER
PVC SCREEN

LAYTON ENVIRONMENTAL ENGINEERING, INC.

7960 Crestwood Blvd.
Irondale, AL 35210

PROJECT NUMBER

BORING NUMBER MW-4 SHEET 1 OF 1

BORING LOG

PROJECT Kimerling Estate DRILLING CONTRACTOR Alabama Environ. Drilling

BORING LOCATION 65' West of 29th St., 340' North of SE property corner

DRILLING METHOD AND EQUIPMENT

DEPTH TO WATER: DATE: 9-11-95 START 1:38 FINISH LOGGER ABM

ELEVATION	DEPTH BELOW SURFACE	SAMPLE INTERVAL	SAMPLE TYPE AND NUMBER	REC	PID PEAK/AVG.	STANDARD PENETRATION TEST RESULTS (N)	SYMBOLIC LOG	SOIL DESCRIPTION / COMMENTS: NAME, GRADATION OR PLASTICITY, PARTICLE SIZE DISTRIBUTION, COLOR, MOISTURE CONTENT, RELATIVE DENSITY OR CONSISTENCY, SOIL STRUCTURE, MINERALOGY, USCS GROUP SYMBOL	MONITORING WELL CONSTRUCTION DETAILS
								Layers of asphalt and concrete	
			SS-1	5"	Env. Sample	12-8-3-2 (5)		Green slag-like material and sandy silty black soil (FILL)	
	5		SS-2	12"		5-5-6-5(11)		Reddish-brown and tan mottled silty clay with trace chert	
			SS-3	19"		4-4-7-8(15)		Dark grey, reddish-brown and tan mottled clayey silt with trace manganese chert. Very moist.	
	10		SS-4	20"		5-5-5-6(11)		(RESIDUUM)	
	15		SS-5			7-28-38-29 (67)		Weathered limestone and very firm silty clay	
								Boring terminated at 17'	
	20								
	25								

▼ WATER LEVEL

GROUT
BENTONITE PELLETS
GRADED SAND

PVC RISER
PVC SCREEN

Appendix C

Underground Fuel Tank Related Receipt and Memo

...MAZER E 205 8 0012 TEL NO.87 1108 Aug 27 11:53 P.01

FROM EPH MAZER

E. Hamill

248780

MP, Charlo, Recycling - c/o EPH MAZER
300 No 21ST. ST.
Birmingham, Al. 35203

DATE 6-26-91

TO Robert Wasleski

CUSTOMER'S ORDER NO. po #

Address Rt 1 Box 30 Wrogueka Al 35183

SHIP

City State Ala 35183

VIA

Ship To Auburn University Oil Spill

SALESMAN S. Robert

Phone (205) 844-3050

CASH	CHARGE	C.O.D.	PAID OUT	RETURNED GOODS	RECEIVED ON ACCOUNT
	X				

QUANTITY	DESCRIPTION	PRICE	AMOUNT
2500	gals of wash water,	60	1,500 00
	Feel Out of tank,		
	Auburn EPA ID # 420715, WI		
	EPA ID # 983-166-234,		
	Phone 414-3205		

All Claims and Returned Goods MUST Be Accompanied By This Bill

SIGNATURE

ADEM

ALABAMA
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

Leigh Pegues, Director

1751 Cong. W. L. Dickinson Drive
Montgomery, AL 36130
(205) 271-7700
FAX 271-7950
270-5612

Field Offices:

110 Vulcan Road
Birmingham, AL 35209
(205) 942-6168
FAX 941-1603

P. O. Box 953
Decatur, AL 35602
(205) 353-1713
FAX 340-9359

2204 Perimeter Road
Mobile, AL 36615
(205) 479-2336
FAX 479-2593

April 17, 1992

Guy Hunt
Governor

M E M O R A N D U M

TO: All UST Compliance, Corrective Action, and Field Office Personnel

THROUGH: Sonja Massey

FROM: Curt D. Johnson

RE: Underground Storage Tank (UST) Systems Subject to Permanent Closure under ADEM Administrative Code Rule 335-6-15

This memo supersedes my memo of March 25, 1992, which was written to clarify which UST systems are and are not subject to closure requirements under the subject rule.

UST systems last used after December 21, 1988 are subject to Rule 335-6-15 closure requirements by definition.

UST systems last used before December 22, 1988 are not subject to Rule 335-6-15 closure requirements, if the UST system meets all the following requirements:

1. The tank was properly closed in accordance with recommended industry practices at the time the UST system was last used. Past industry practices recognized by the Department are as follows:

   a. UST system emptied,
   b. UST system emptied and filled with water,
   c. UST system emptied and filled with an inert material.
   d. UST system removed

2. The UST system has not leaked such that human health or environment is threatened.

3. The UST system has no potential to leak such that there could be a future threat to human health or environment.

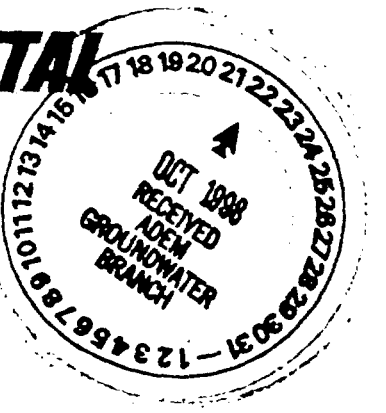
Under Rule 335-6-15, the Department has the authority to require closure of a UST system in accordance with the above Rule if the Department determines that human health or environment has been threatened, or has the potential to be threatened.

The above Department policy is based on EPA's Analysis of UST Technical Requirements, Rule 40 CFR Part 280 and can be found in Section IV. G.5. "Applicability to previously closed UST systems" of the preamble to these EPA regulations.

CDJ/-1b

★ **TRUCKPRO** ★ **TRANSMITTAL**

123 South Front Street, Memphis, TN 38103/P. O. Box 2198, Memphis, TN 38101/(901)495-7086



DATE: 10/21/98

TO: Fred Hoom
ADEM

FROM: Teresea Hicks
TruckPro, Inc.
Dept. 8127
Phone: (901)495-7086
Fax: (901)495-8442

REMARKS: ☐ Urgent ☐ For Your Review ☒ Reply ASAP ☐ Please Comment

Fred,

Per our conversation today I am sending the attached Phase I/Partial Phase II. Please advise CEI, David Tipton of what will be required for AutoZone to proceed with the purchase/construction of a new TruckPro facility. Davids phone # is 501-273-9472. I am assuming we are looking for a "No further action Letter" so please let us know what is required at this point. Thanks.

Teresea Hicks

Soil Screening Values for clean up using Risk Based Table (Region 3 EPA)

Arsenic 0.43 R/ 3.8 mg/kg I Hg = 23 R/ 610 I

Lead 400 mg R/ 1000 I Water - MCL Values

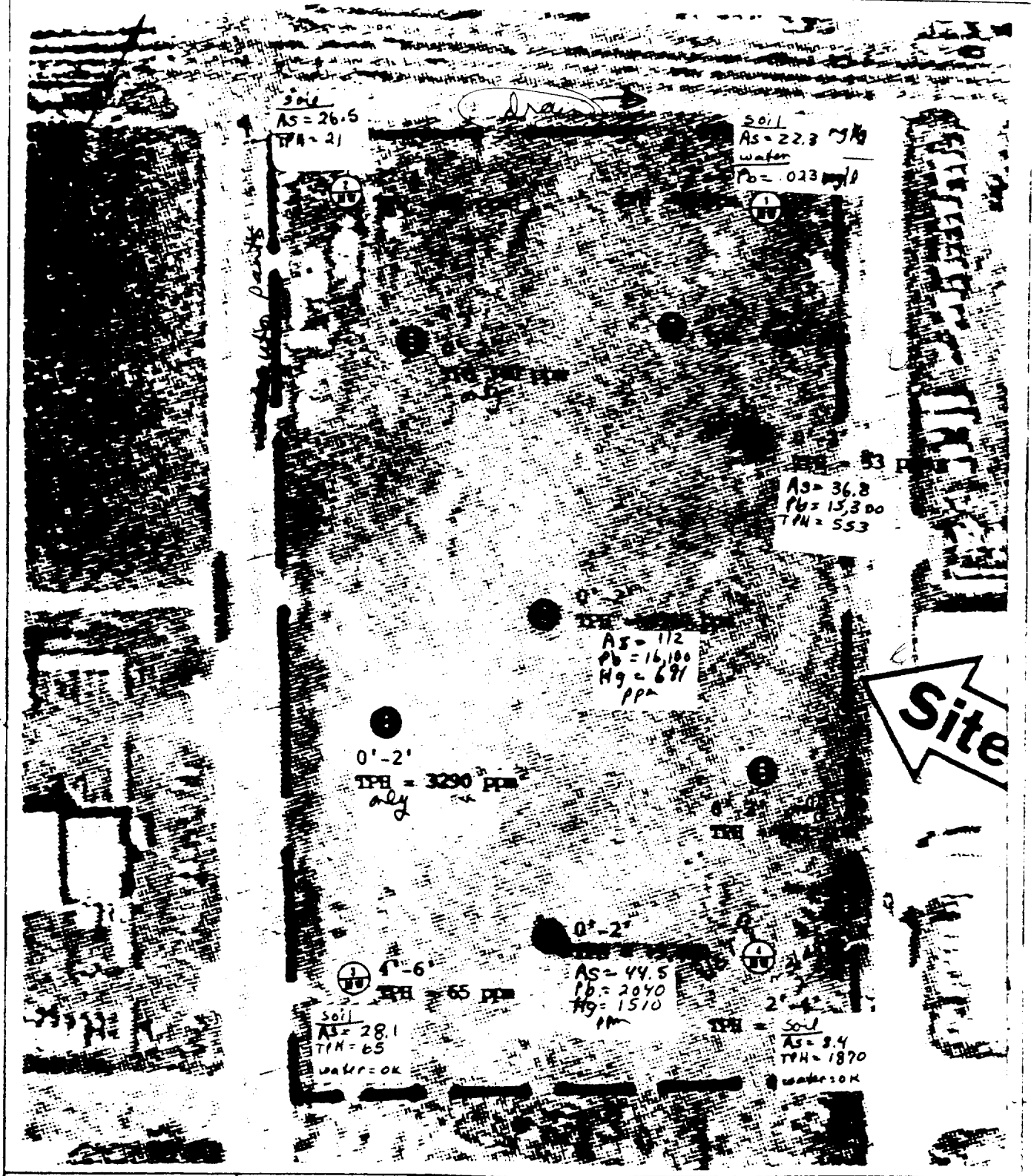


Figure No. 6.2	SOIL SAMPLE TPH RESULTS FORMER JAFFE IRON & METAL COMPANY SITE 2850 5th Avenue North Birmingham, AL	LAYTON ENVIRONMENTAL ENGINEERING, INC. 7960 Crestwood Blvd. Irondale, AL 35210
Scale: 1" = 100'		Date: Sept, 1995

TABLE 6.1
ANALYTICAL RESULTS

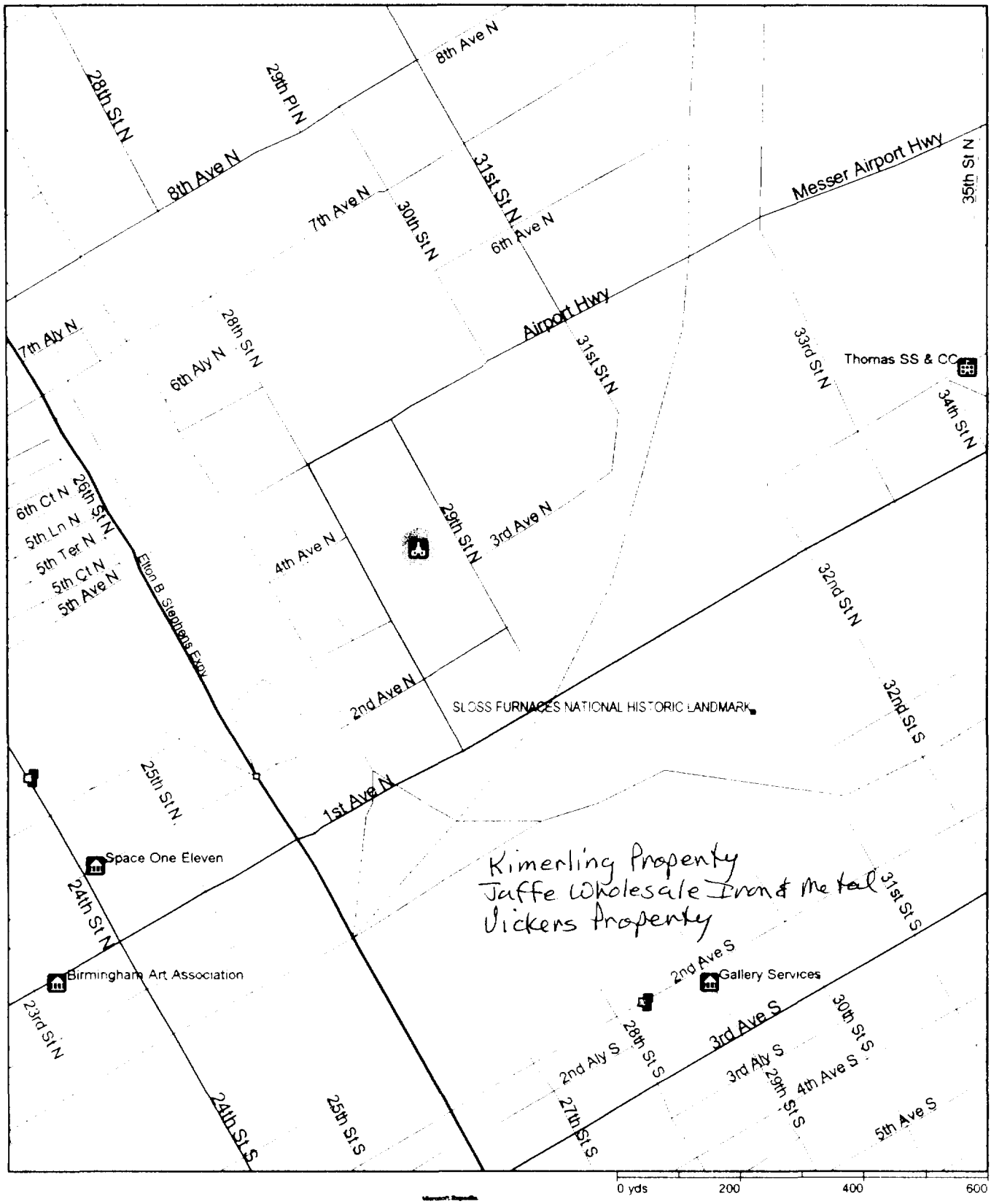
Parameter	Units	Media	Boring B-1	Boring B-2	Boring B-3	Well MW-1	Well MW-2	Well MW-3	Well MW-4	B-4	B-5	B-6	B-7
Soil Sample Depth			0'-2'	0'-2'	0'-2'	2'-4'	2'-4'	4'-6'	2'-4'				
Total Arsenic	mg/kg	Soil	44.5	112	36.8	22.3	26.5	28.1	8.4				
Total Barium	mg/kg	Soil	255	372	196	*	*	*	331				
Total Cadmium	mg/kg	Soil	15	40	7	*	*	*	*				
Total Chromium	mg/kg	Soil	274	239	[illegible]	22	42	72	151				
Total Lead	mg/kg	Soil	2040	[illegible]	15300	19.6	14.5	267	132				
Total Mercury	mg/kg	Soil	3516	691	436	*	*	232	*				
Total Selenium	mg/kg	Soil	*	0.6	*	*	*	*	*				
Total Silver	mg/kg	Soil	*	*	*	*	*	*	*				
Total Petroleum Hydrocarbons	mg/kg	Soil	[illegible]	4340	553	9	21	65	1870	3290	340	571	236
TCLP Arsenic	mg/kg	Soil	0.009	0.006					0.007				
TCLP Barium	mg/kg	Soil	2	2					*				
TCLP Cadmium	mg/kg	Soil	0.03	0.15					*				
TCLP Chromium	mg/kg	Soil	*	*					*				
TCLP Lead	mg/kg	Soil	*	1.66					*				
TCLP Mercury	mg/kg	Soil	*	*					*				
TCLP Selenium	mg/kg	Soil	*	*					*				
TCLP Silver	mg/kg	Soil	*	*					*				
TCLP Volatile Organics	mg/kg	Soil	*										
TCLP Semi-Volatile Organics	mg/kg	Soil	*										
Total Arsenic	mg/l	Water				*		*	*				
Total Barium	mg/l	Water				0.19		0.10	0.09				
Total Cadmium	mg/l	Water				*		*	*				
Total Chromium	mg/l	Water				*		*	*				
Total Lead	mg/l	Water				0.023		0.006	0.007				
Total Mercury	mg/l	Water	.002			*		*	*				
Total Selenium	mg/l	Water	.05			*		*	*				
Total Silver	mg/l	Water				*		*	*				
Total Benzene, Ethylbenzene, Toluene, Xylene, (BETX)	mg/l	Water				*		*	*				
Total Polynuclear Aromatic Hydro-Carbons (PAH)	mg/l	Water				*		*	*				

* Below Detection Limits

ATTACHMENT 1

Jaffe Wholesale Iron and Metal Co.

2850 5th Avenue North, Birmingham, A L 35203



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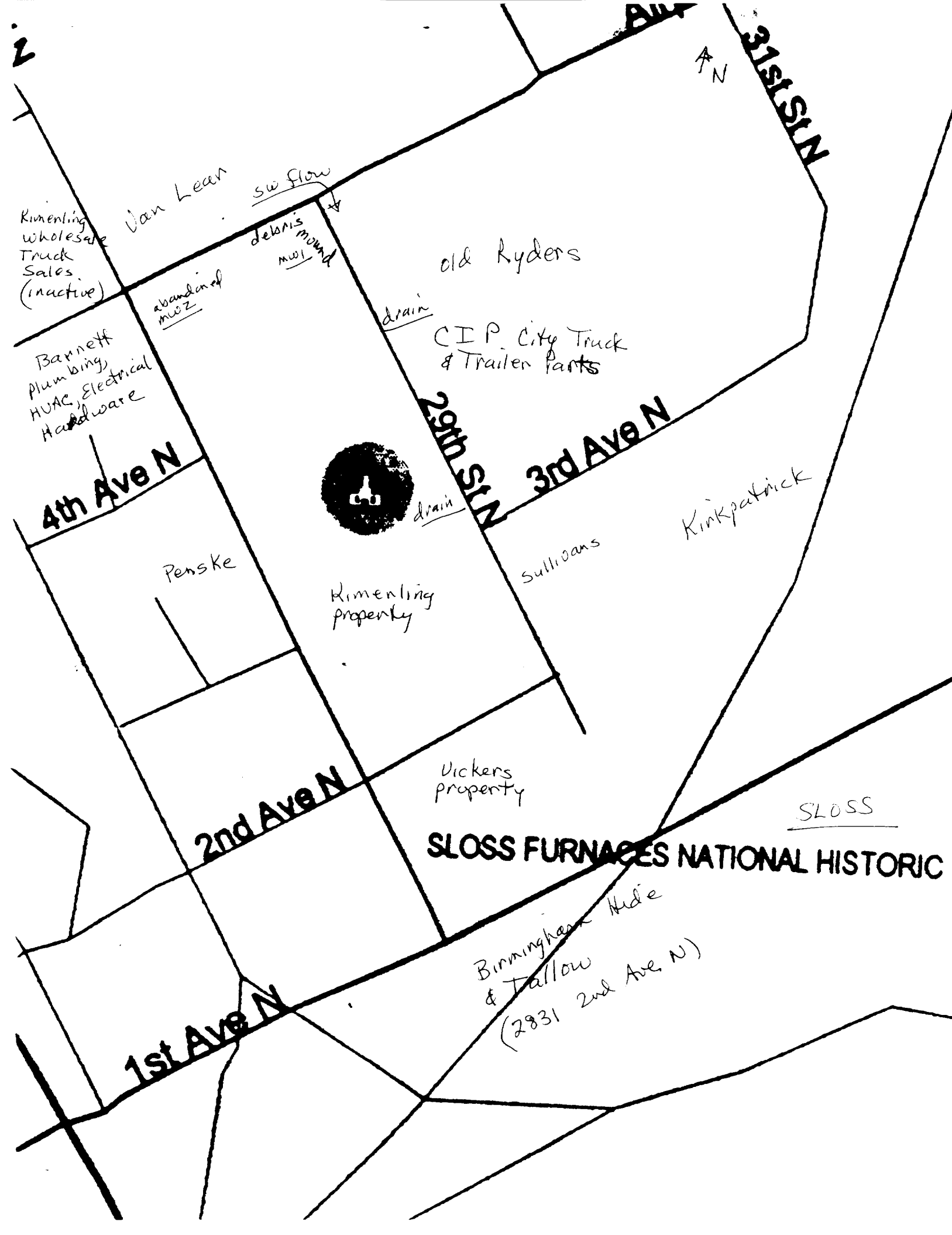
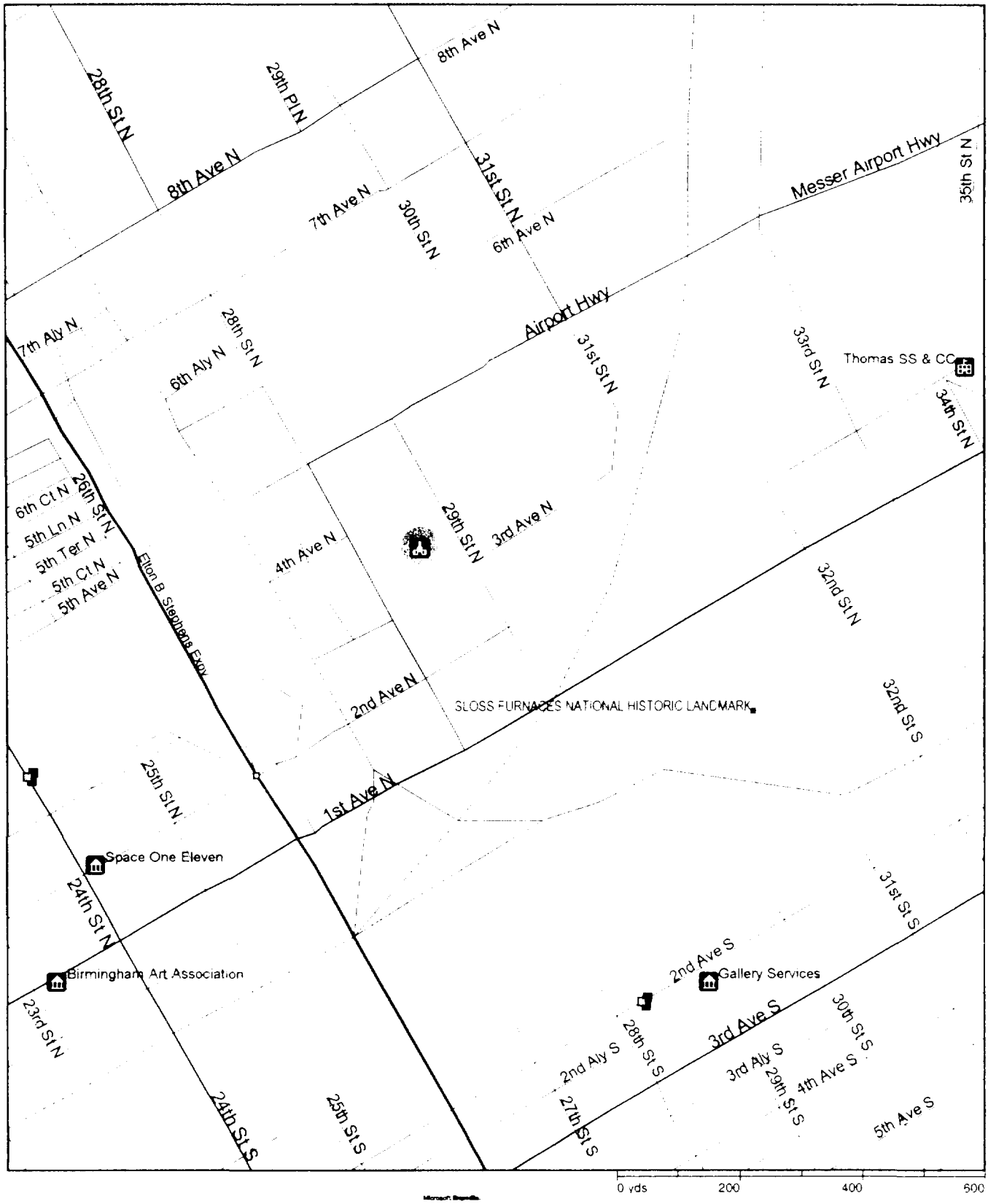

N
31st St N
Van Lear
sw flow
Kimenling Wholesale Truck Sales (inactive)
debris mound
MW1
old Ryders
abandoned MW2
drain
CIP City Truck & Trailer Parts
Barnett Plumbing, HVAC, Electrical Hardware
29th St N
3rd Ave N
4th Ave N
drain
Penske
Kimenling property
Sullivans
Kirkpatrick
Vickers property
2nd Ave N
SLOSS
SLOSS FURNACES NATIONAL HISTORIC
Birmingham Hide & Tallow (2831 2nd Ave N)
1st Ave N

Jaffe Wholesale Iron and Metal Co.

2850 5th Avenue North, Birmingham, A L 35203



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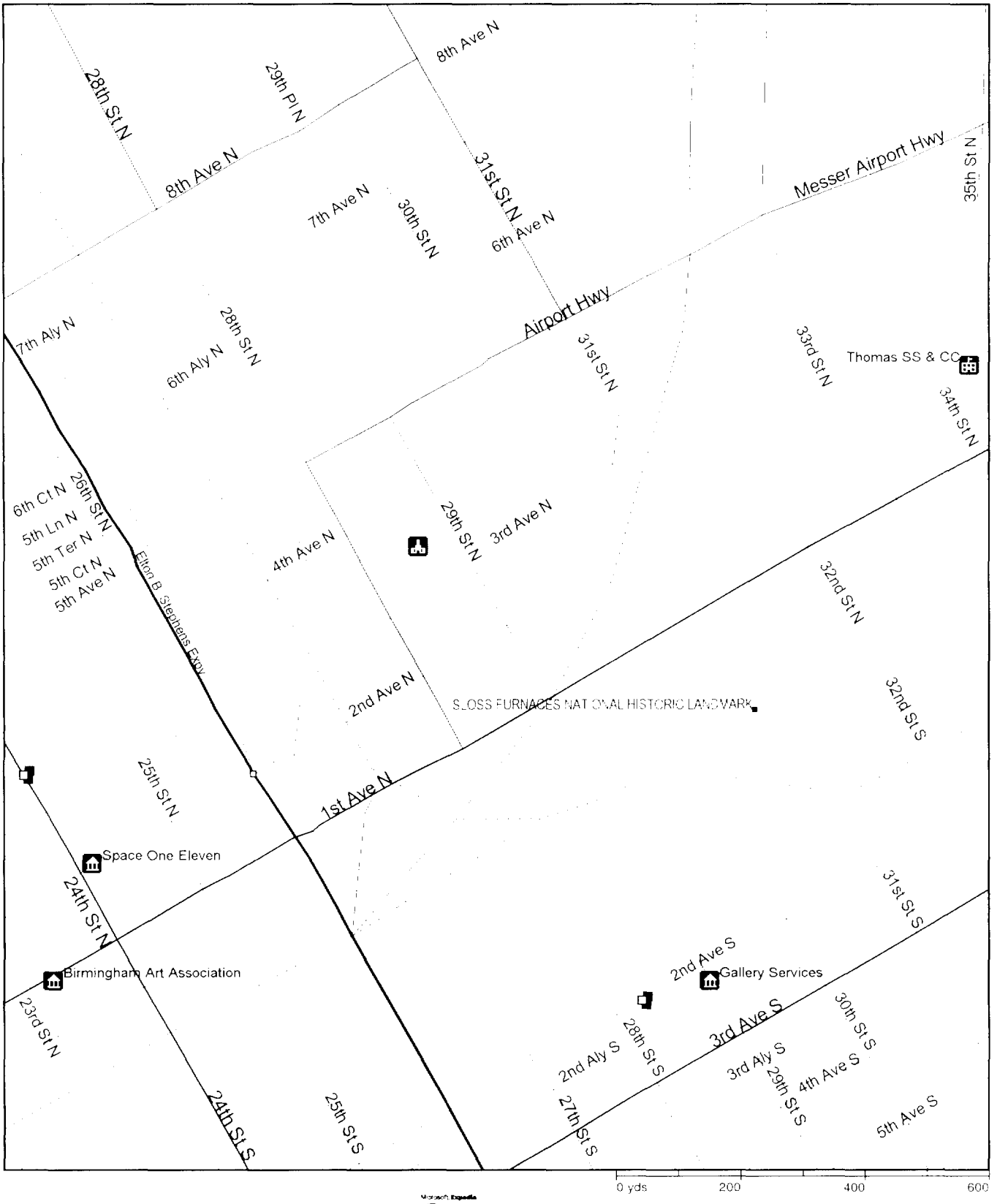
Jaffe Wholesale Iron and Metal Co.

2850 5th Avenue North, Birmingham, A L 35203



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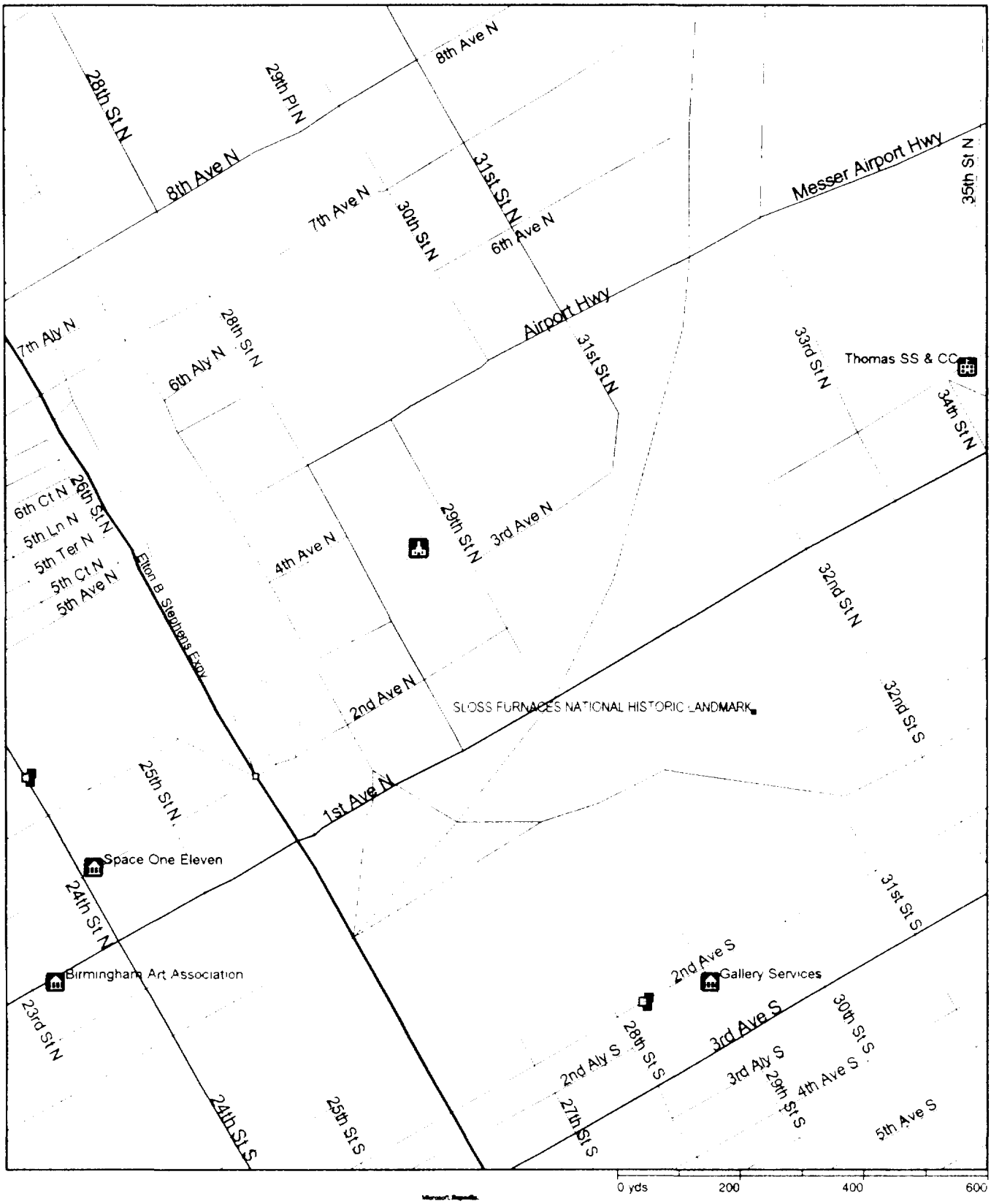

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Jaffe Wholesale Iron and Metal Co.

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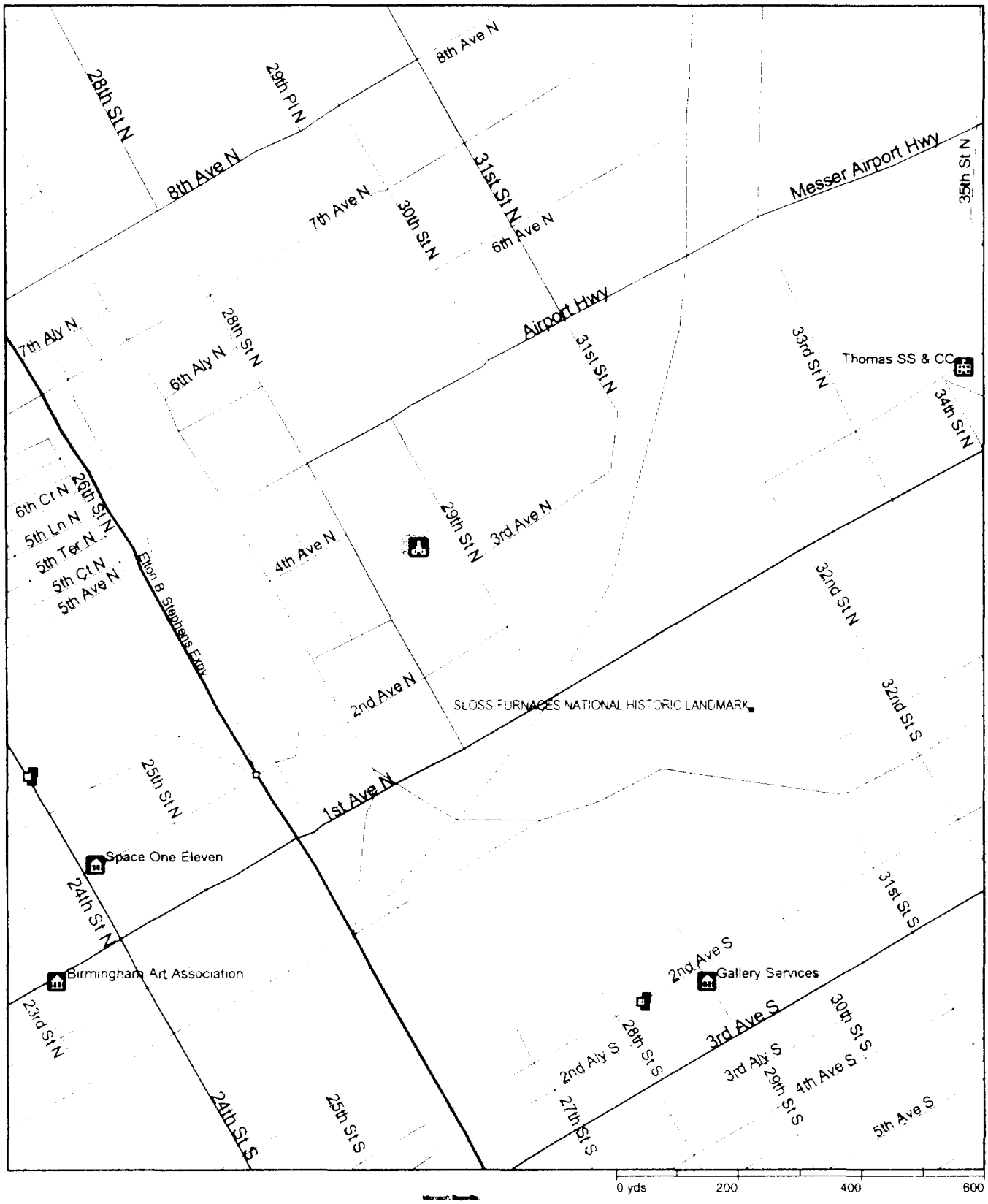

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31st St N
29th St N
3rd Ave N
4th Ave N
2nd Ave N
1st Ave N
SLOSS FURNACES NATIONAL HISTORIC


31st St N
29th St N
3rd Ave N
4th Ave N
2nd Ave N
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4th Ave N
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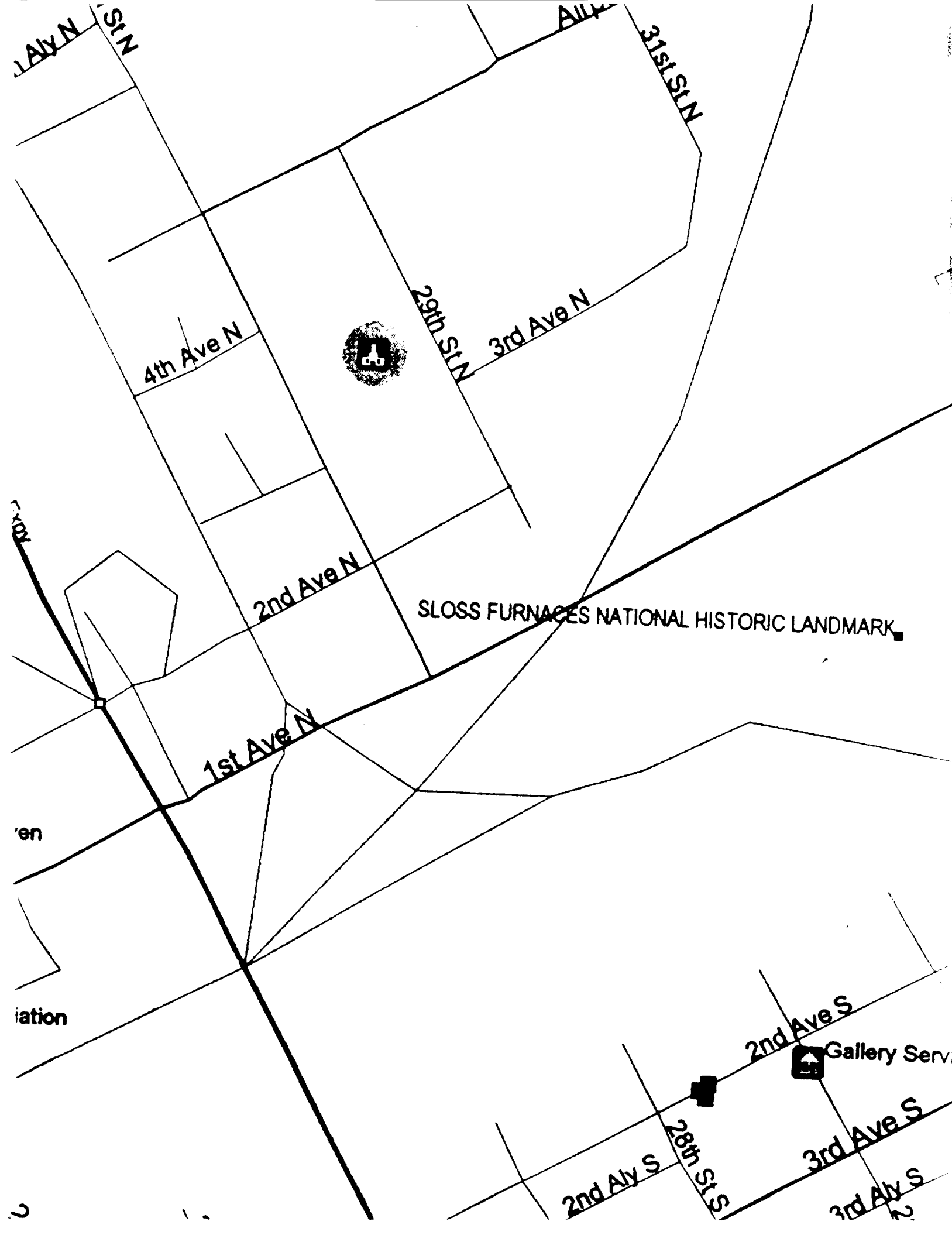
31st St N
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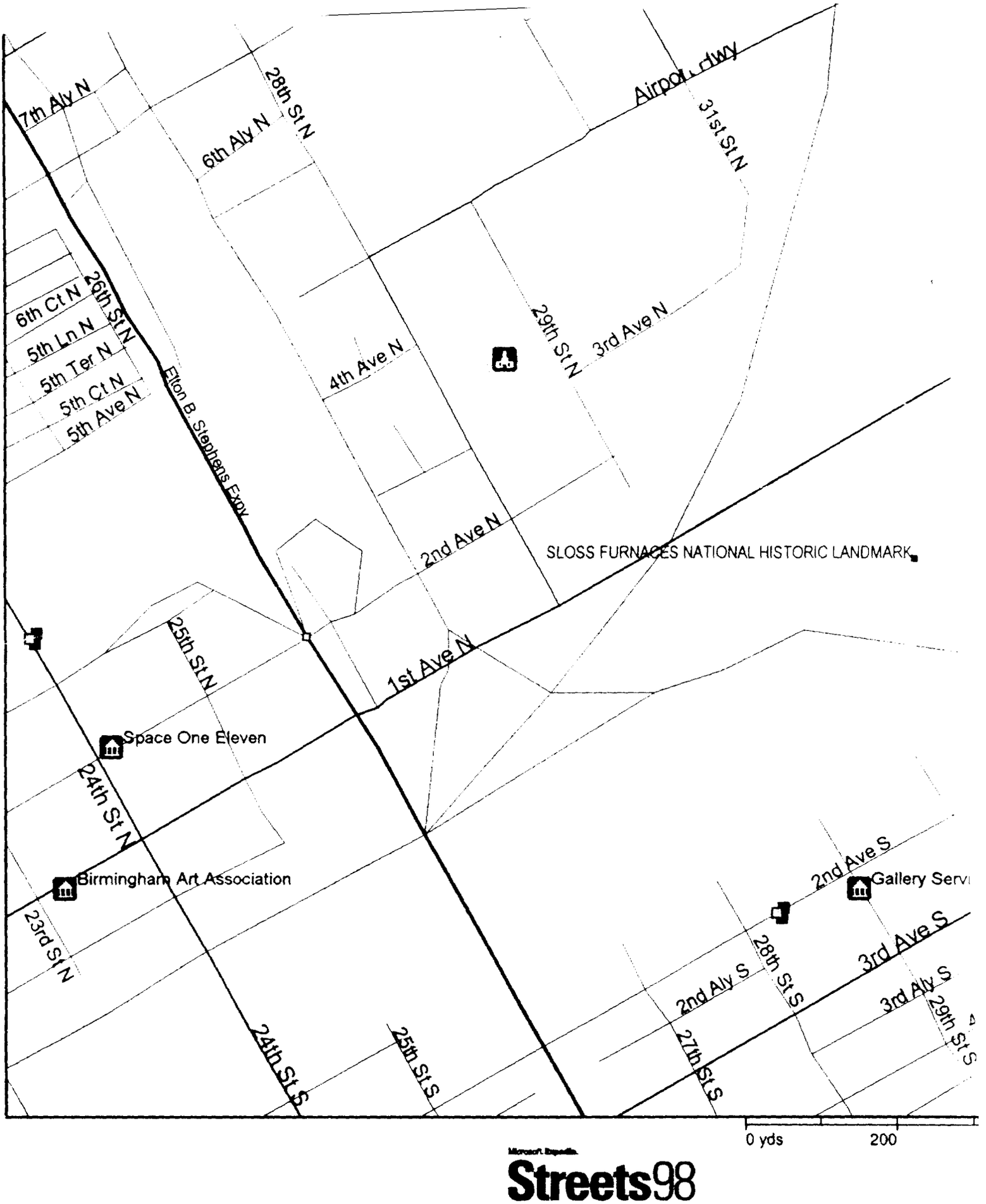

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A-9
Vol. 1

PA Scoresheets

Site Name: JAFFE WHOLESALE IRON AND METAL CO.
CERCLIS ID No.: 000092280762
Street Address: 2850 5TH AVE NORTH
City/State/Zip: BIRMINGHAM, AL 35203

Investigator: PAUL I. OYEGBEDA
Agency/Organization: ADEM
Street Address: 1400 Coliseum Boulevard
City/State/Zip: MONTGOMERY, AL 36110
Date: JUNE 12, 2000.

INSTRUCTIONS FOR SCORESHEETS

Introduction

This scoresheets package functions as a self-contained workbook providing all of the basic tools to apply collected data and calculate a PA score. Note that a computerized scoring tool, "PA-Score," is also available from EPA (Office of Solid Waste and Emergency Response, Directive 9345.1-11). The scoresheets provide space to:

- Record information collected during the PA
- Indicate references to support information
- Select and assign values ("scores") for factors
- Calculate pathway scores
- Calculate the site score

Do not enter values or scores in shaded areas of the scoresheets. You are encouraged to write notes on the scoresheets and especially on the Criteria Lists. On scoresheets with a reference column, indicate a number corresponding to attached sources of information or pages containing rationale for hypotheses; attach to the scoresheets a numbered list of these references. Evaluate all four pathways. Complete all Criteria Lists, scoresheets, and tables. Show calculations, as appropriate. If scoresheets are photocopy reproduced, copy and submit the numbered pages (right-side pages) only.

GENERAL INFORMATION

Site Description and Operational History: Briefly describe the site and its operating history. Provide the site name, owner/operator, type of facility and operations, size of property, active or inactive status, and years of waste generation. Summarize waste treatment, storage, or disposal activities that have or may have occurred at the site; note also if these activities are documented or alleged. Identify probable source types and prior spills. Summarize highlights of previous investigations.

Probable Substances of Concern: List hazardous substances that have or may have been stored, handled, or disposed at the site, based on your knowledge of site operations. Identify the sources to which the substances may be related. Summarize any existing analytical data concerning hazardous substances detected onsite, in releases from the site, or at targets.

GENERAL INFORMATION

Site Description and Operational History:

The Jaffe Wholesale Iron and Metal Company site is in the southwest ¼ of the southwest ¼ of Section 30 Township 17 South, Range 2 West, northwest Bessemer Quadrangle, Map, Alabama (Fig. 1). The site is comprised of 2 parcels. The Northern two-thirds is owned by the Kimerling Family, and the southern third is owned by the Vickers. The Kimerling's property is approximately 6.61 acres, while the Vickers' property is approximately 3.31 acres. The site is covered with mixed concrete and building debris, waste material, weeds and bushes. There are no buildings on the property, nor is there any fence or site barrier. Evidence indicates that the property is used by trespassers. The property is bounded by 2nd Avenue North to the south, 5th Avenue North to the north, 28th Street North to the west, and 29th Street North to the east (Ref. 3). The site is in the midst of an industrial and commercial area with no residence nearby. Nearby businesses to the property include Kimerling Wholesale Truck Sale (inactive) and Van Lear to the north. Birmingham Hide and Tallow lies to the south. Sullivans and Kirkpatrick lie to the southeast. Old Ryders along with CIP City Truck and Trailer Parks lie to the northeast. Barnett Plumbing, HVAC Electrical Hardware to the northwest and Penske to the west.

The Jaffe Wholesale Iron and Metal Company site is located on 2850 5th Avenue North between 28th Street North to the west, and 29th Street North to the east (Fig. 1). The property is bounded by industrial and commercial operations, and it is situated in a developed area of Birmingham, Jefferson County, Alabama. A review of historical Sanborn Map for the year 1911 revealed the site as undeveloped open lot. However, the Sanborn Maps for 1951 and 1969 showed the subject site in operation as Jaffe Wholesale Iron and Metal Company (Ref. 18). The aerial photograph of 1956, 1977, 1985, and 1993 revealed the property is operational as Jaffe Wholesale Iron and Metal Company. Currently the site is a vacant lot. These aerial photographs also showed the Birmingham Hide and Tallow (BH&T) site operational along the contiguous southwestern property boundary. The BH&T site was operated as an animal hide stripping and preparatory factory (Ref. 18).

Probable Substances of Concern:
(Previous investigations, analytical data)

Contaminated Soil

Lead, Mercury, and Arsenic

Site Sketch: Prepare a sketch of the site (freehand is acceptable). Indicate all pertinent features of the site and nearby environs, including: waste sources, buildings, residences, access roads, parking areas, drainage patterns, water bodies, vegetation, wells, sensitive environments, etc.

GENERAL INFORMATION (continued)

Site Sketch:
(Show all pertinent features, indicate sources and closest targets, indicate north)

SOURCE EVALUATION

- Number and name each source (e.g., 1. East Drum Storage Area, 2. Sludge Lagoon, 3. Battery Pile).
- Identify source type according to the list below.
- Describe the physical character of each source (e.g., dimensions, contents, waste types, containment, operating history).
- Show waste quantity (WQ) calculations for each source for appropriate tiers. Refer to instructions opposite page 5 and PA Tables 1a and 1b. Identify waste quantity tier and waste characteristics (WC) factor category score (for a site with a single source, according to PA Table 1a). Determine WC from PA Table 1b for the sum of source WQs for a multiple-source site.
- Attach additional sheets if necessary.
- Determine the site WC factor category score and record at the bottom of the page.

Source Type Descriptions

Landfill: an engineered (by excavation or construction) or natural hole in the ground into which wastes have been disposed by backfilling, or by contemporaneous soil deposition with waste disposal, covering wastes from view.

Surface Impoundment: a topographic depression, excavation, or diked area, primarily formed from earthen materials (lined or unlined) and designed to hold accumulated liquid wastes, wastes containing free liquids, or sludges that were not backfilled or otherwise covered during periods of deposition; depression may be dry if deposited liquid has evaporated, volatilized or leached, or wet with exposed liquid; structures that may be more specifically described as lagoon pond, aeration pit, settling pond, tailings pond, sludge pit, etc.; also a surface impoundment that has been covered with soil after the final deposition of waste materials (i.e., buried or backfilled).

Drums: portable containers designed to hold a standard 55-gallon volume of wastes.

Tanks and Non-Drum Containers: any stationary device, designed to contain accumulated wastes, constructed primarily of fabricated materials (such as wood, concrete, steel, or plastic) that provide structural support; any portable or mobile device in which waste is stored or otherwise handled.

Contaminated Soil: soil onto which available evidence indicates that a hazardous substance was spilled, spread, disposed, or deposited.

Pile: any non-containerized accumulation above the ground surface of solid, non-flowing wastes; includes open dumps. Some types of piles are: Chemical Waste Pile – consists primarily of discarded chemical products, by-products, radioactive wastes, or used or unused feedstocks; Scrap Metal or Junk Pile – consists primarily of scrap metal or discarded durable goods such as appliances, automobiles, auto parts, or batteries, composed of materials suspected to contain or have contained a hazardous substance; Tailings Pile – consists primarily of any combination of overburden from a mining operation and tailings from a mineral mining, beneficiation, or processing operation; Trash Pile – consists primarily of paper, garbage, or discarded non-durable goods which are suspected to contain or have contained a hazardous substance.

Land Treatment: landfarming or other land treatment method of waste management in which liquid wastes or sludges are spread over land and tilled, or liquids are injected at shallow depths into soils.

Other: a source that does not fit any of the descriptions above; examples include contaminated building, ground water plume with no identifiable source, storm drain, dry well, and injection well.

SOURCE EVALUATION

Source No.: 1	Source Name: Contaminated Soil	Source Waste Quantity (WQ) Calculations:
Source Description: Acres / 0.78 $\frac{9.92}{0.78} = 12.72$		12.72

Source No.: 2	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description: Groundwater plume Volume = Acres × Depth of water × Porosity $V = 43560\ ft^2 \times 6.5\ \text{Acres} \times 1\ ft \times 0.20$ Acres $= \frac{56,628\ ft^3}{67.5} = 838.9$		838.9

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

12.72 + 838.9 = 851.62

Site WC: 32

SOURCE EVALUATION

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

Source No.:	Source Name:	Source Waste Quantity (WQ) Calculations:
Source Description:		

Site WC:

WASTE CHARACTERISTICS (WC) SCORES

WC, based on waste quantity, may be determined by one or all of four measures called "tiers": constituent quantity, wastestream quantity, source volume, and source area. PA Table 1a (page 5) is divided into these four tiers. The amount and detail of information available determine which tier(s) to use for each source. For each source, evaluate waste quantity by as many of the tiers as you have information to support, and select the result that gives you the highest WC score. If minimal, incomplete, or no information is available regarding waste quantity, assign a WC score of 18 (minimum).

PA Table 1a has 6 columns: column 1 indicates the quantity tier; column 2 lists source types for the four tiers; columns 3, 4, and 5 provide ranges of waste amount for sites with only one source, which correspond to WC scores at the top of the columns (18, 32, or 100); column 6 provides formulas to obtain source waste quantity (WQ) values at sites with multiple sources.

To determine WC for sites with only one source:

1. *Identify source type (see descriptions opposite page 4).*
2. *Examine all waste quantity data available.*
3. *Estimate the mass and/or dimensions of the source.*
4. *Determine which quantity tiers to use based on available source information.*
5. *Convert source measurements to appropriate units for each tier you can evaluate for the source.*
6. *Identify the range into which the total quantity falls for each tier evaluated (PA Table 1a).*
7. *Determine the highest WC score obtained for any tier (18, 32, or 100, at top of PA Table 1a columns 3, 4, and 5, respectively).*
8. *Use this WC score for all pathways.* *

To determine WC for sites with multiple sources:

1. *Identify each source type (see descriptions opposite page 4).*
2. *Examine all waste quantity data available for each source.*
3. *Estimate the mass and/or dimensions of each source.*
4. *Determine which quantity tiers to use for each source based on the available information.*
5. *Convert source measurements to appropriate units for each tier you can evaluate for each source.*
6. *For each source, use the formulas in column 6 of PA Table 1a to determine the WQ value for each tier that can be evaluated. The highest WQ value obtained for any tier is the WQ value for the source.*
7. *Sum the WQ values for all sources to get the site WQ total.*
8. *Use the site WQ total from step 7 to assign the WC score from PA Table 1b.*
9. *Use this WC score for all pathways.* *

---

* The WC score is considered in all four pathways. However, if a primary target is identified for the ground water, surface water, or air migration pathway, assign the determined WC or a score of 32, whichever is greater, as the WC score for that pathway.

PA TABLE 1: WASTE CHARACTERISTICS (WC) SCORES

PA Table 1a: WC Scores for Single Source Sites and Formulas for Multiple Source Sites

TIER	SOURCE TYPE	SINGLE SOURCE SITES (assigned WC scores)			MULTIPLE SOURCE SITES
		WC = 18	WC = 32	WC = 100	Formula for Assigning Source WC Values
CONCENTRATION	N/A	≤100 lb	>100 to 10,000 lb	>10,000 lb	lb ÷ 1
TOXICITY	N/A	≤500,000 lb	>500,000 to 50 million lb	>50 million lb	lb ÷ 5,000
VOLUME	Landfill	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Surface impoundment	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Drums	≤1,000 drums	>1,000 to 100,000 drums	>100,000 drums	drums ÷ 10
	Tanks and non-drum containers	≤50,000 gallons	>50,000 to 5 million gallons	>5 million gallons	gallons ÷ 500
	Contaminated soil	≤6.75 million ft³ ≤250,000 yd³	>6.75 million to 675 million ft³ >250,000 to 25 million yd³	>675 million ft³ >25 million yd³	ft³ ÷ 67,500 yd³ ÷ 2,500
	Pile	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
	Other	≤6,750 ft³ ≤250 yd³	>6,750 to 675,000 ft³ >250 to 25,000 yd³	>675,000 ft³ >25,000 yd³	ft³ ÷ 67.5 yd³ ÷ 2.5
AREA	Landfill	≤340,000 ft² ≤7.8 acres	>340,000 to 34 million ft² >7.8 to 780 acres	>34 million ft² >780 acres	ft² ÷ 3,400 acres ÷ 0.078
	Surface impoundment	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Contaminated soil	≤3.4 million ft² ≤78 acres	>3.4 million to 340 million ft² >78 to 7,800 acres	>340 million ft² >7,800 acres	ft² ÷ 34,000 acres ÷ 0.78
	Pile*	≤1,300 ft² ≤0.029 acres	>1,300 to 130,000 ft² >0.029 to 2.9 acres	>130,000 ft² >2.9 acres	ft² ÷ 13 acres ÷ 0.00029
	Land treatment	≤27,000 ft² ≤0.62 acres	>27,000 to 2.7 million ft² >0.62 to 62 acres	>2.7 million ft² >62 acres	ft² ÷ 270 acres ÷ 0.0062

1 ton = 2,000 lb = 1 yd³ = 4 drums = 200 gallons

* Use area of land surface under pile, not surface area of pile.

PA Table 1b: WC Scores for Multiple Source Sites

WC Total	WC Score
>0 to 180	18
>180 to 10,000	32
>10,000	100

GROUND WATER PATHWAY

Ground Water Use Description: Provide information on ground water use in the vicinity. Present the general stratigraphy, aquifers used, and distribution of private and municipal wells.

Calculations for Drinking Water Populations Served by Ground Water: Provide populations from private wells and municipal supply systems in each distance category. Show apportionment calculations for blended supply systems.

GROUND WATER PATHWAY
GROUND WATER USE DESCRIPTION

Describe Ground Water Use Within 4-miles of the Site:
(Describe stratigraphy, information on aquifers, municipal and/or private wells)

The Birmingham Water Works and Sewer Board serves the city of Birmingham and surrounding areas. The City of Birmingham purchases 100% of its drinking water from the Birmingham Water Works and Sewer Board. The Birmingham Water System utilizes the Inland Lake in Blount County, Lake Purdy in Shelby County, the Cahaba River and the Mulberry Fork of Black Warrior River as their sources for public water, and it is 100% surface water. All residences obtain potable water from the public water system. According to the water availability data for the City of Birmingham, there are no active public water supply wells within a 4-mile radius of the site; however, there is a possibility of some private wells present within the target distance. Public water is available throughout Jefferson County, and all public water is obtained from distant surface impoundments (Ref. 6, 8).

Calculations for Drinking Water Populations Served by Ground Water:

0

GROUND WATER PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing hypotheses concerning the occurrence of a suspected release and the exposure of specific targets to a hazardous substance. The check-boxes record your professional judgment in evaluating these factors. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypotheses, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several site, source, and pathway conditions that could provide insight as to whether a release from the site is likely to have occurred. If a release is suspected, use the "Primary Targets" section to evaluate conditions that may help identify targets likely to be exposed to a hazardous substance. Record responses for the well that you feel has the highest probability of being exposed to a hazardous substance. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary."

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.

GROUND WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☐	☒	☐	Are sources poorly contained?
☐	☒	☐	Is the source a type likely to contribute to ground water contamination (e.g., wet lagoon)?
☒	☐	☐	Is waste quantity particularly large?
☒	☐	☐	Is precipitation heavy?
☐	☐	☐	Is the infiltration rate high?
☒	☐		Is the site located in an area of karst terrain?
☒	☐	☐	Is the subsurface highly permeable or conductive?
☐	☒	☐	Is drinking water drawn from a shallow aquifer?
☐	☒	☐	Are suspected contaminants highly mobile in ground water?
☒	☐	☐	Does analytical or circumstantial evidence suggest ground water contamination?
☐	☒		Other criteria?_____
☒	☐		**SUSPECTED RELEASE?**

PRIMARY TARGETS

Yes	No	Unk	
☐	☒	☐	Is any drinking water well nearby?
☐	☒	☐	Has any nearby drinking water well been closed?
☐	☒	☐	Has any nearby drinking water user reported foul-tasting or foul-smelling water?
☐	☒	☐	Does any nearby well have a large drawdown or high production rate?
☐	☒	☐	Is any drinking water well located between the site and other wells that are suspected to be exposed to a hazardous substance?
☐	☒	☐	Does analytical or circumstantial evidence suggest contamination at a drinking water well?
☐	☒	☐	Does any drinking water well warrant sampling?
☐	☒		Other criteria?_____
☐	☒		**PRIMARY TARGET(S) IDENTIFIED?**

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Summarize the rationale for Primary Targets (attach an additional page if necessary):

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Refer to the Ground Water Pathway Criteria List (page 7) to hypothesize whether you suspect that a hazardous substance associated with the site has been released to ground water. Record depth to aquifer (in feet): the difference between the deepest occurrence of a hazardous substance and the depth of the top of the shallowest aquifer at (or as near as possible) to the site. Note whether the site is in karst terrain (characterized by abrupt ridges, sink holes, caverns, springs, disappearing streams). Record the distance (in feet) from any source to the nearest well used for drinking water.

Likelihood of Release (LR)

1. Suspected Release: Hypothesize based on professional judgment guided by the Ground Water Pathway Criteria List (page 7). If you suspect a release to ground water, use only Column A for this pathway and do not evaluate factor 2.

2. No Suspected Release: If you do not suspect a release, determine score based on depth to aquifer or whether the site is in an area of karst terrain. If you do not suspect a release to ground water, use only Column B to score this pathway.

Targets (T)

This factor category evaluates the threat to populations obtaining drinking water from ground water. To apportion populations served by blended drinking water supply systems, determine the percentage of population served by each well based on its production.

3. Primary Target Population: Evaluate populations served by all drinking water wells that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Ground Water Pathway Criteria List (page 7) to make this determination. In the space provided, enter the population served by any wells you suspect have been exposed to a hazardous substance from the site. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine population served. Multiply the population by 10 to determine the Primary Target Population score. Note that if you do not suspect a release, there can be no primary target population.

4. Secondary Target Population: Evaluate populations served by all drinking water wells within 4 miles that you do not suspect have been exposed to a hazardous substance. Use PA Table 2a or 2b (for wells drawing from non-karst and karst aquifers, respectfully) (page 9). If only the number of residences is known, use the average county residents per household (rounded to the nearest integer) to determine population served. Circle the assigned value for the population in each distance category and enter it in the column on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

5. Nearest Well represents the threat posed to the drinking water well that is most likely to be exposed to a hazardous substance. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 2a or 2b for the closest distance category with a drinking water well population.

6. Wellhead Protection Area (WHPA): WHPAs are special areas designated by States for protection under Section 1428 of the Safe Drinking Water Act. Local/State and EPA Regional water officials can provide information regarding the location of WHPAs.

7. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if ground water within 4 miles has no resource use.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

Waste Characteristics (WC)

8. Waste Characteristics: Score is assigned from page 4. However, if you have identified any primary target for ground water, assign either the score calculated on page 4 or a score of 32, whichever is greater.

Ground Water Pathway Score: Multiply the scores for LR, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

GROUND WATER PATHWAY SCORESHEET

Pathway Characteristics		
Do you suspect a release (see Ground Water Pathway Criteria List, page 71)?	Yes X	No ___
Is the site located in karst terrain?	Yes X	No ___
Depth to aquifer:	0-25	ft
Distance to the nearest drinking water well:	N/A	ft

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to ground water (see page 71), assign a score of 550. Use only column A for this pathway.	550		
2. NO SUSPECTED RELEASE: If you do not suspect a release to ground water, and the site is in karst terrain or the depth to aquifer is 70 feet or less, assign a score of 500; otherwise, assign a score of 340. Use only column B for this pathway.			
LR =	550		
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people served by drinking water wells that you suspect have been exposed to a hazardous substance from the site (see Ground Water Pathway Criteria List, page 71). 0 people x 10 =	0		
4. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water wells that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 2. Are any wells part of a blended system? Yes ___ No ✓ If yes, attach a page to show apportionment calculations.	0		
5. NEAREST WELL: If you have identified a primary target population for ground water, assign a score of 50; otherwise, assign the Nearest Well score from PA Table 2. If no drinking water wells exist within 4 miles, assign a score of zero.			
6. WELLHEAD PROTECTION AREA (WHPA): If any source lies within or above a WHPA, or if you have identified any primary target well within a WHPA, assign a score of 20; assign 5 if neither condition holds but a WHPA is present within 4 miles; otherwise assign zero.	0		
7. RESOURCES	5		
T =	5		
WASTE CHARACTERISTICS			
8. A. If you have identified any primary target for ground water, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any primary target for ground water, assign the waste characteristics score calculated on page 4.	32		
WC =	32		

GROUND WATER PATHWAY SCORE: $\frac{LR \times T \times WC}{82,500}$ = 1.1

$\frac{550 \times 5 \times 32}{82,500} = 1.1$

1.06

PA TABLE 2: VALUES FOR SECONDARY GROUND WATER TARGET POPULATIONS

PA Table 2a: Non-Karst Aquifers

Distance from Site	Population	Nearest Well (choose highest)	Population Served by Wells Within Distance Category										Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	
0 to ¼ mile	_____	20	1	2	6	18	52	163	521	1,633	5,214	16,325	_____
> ¼ to ½ mile	_____	10	1	1	3	10	32	101	323	1,012	3,233	10,121	_____
> ½ to 1 mile	_____	9	1	1	2	5	17	52	167	522	1,668	5,224	_____
> 1 to 2 miles	_____	5	1	1	1	3	9	29	94	294	939	2,938	_____
> 2 to 3 miles	_____	3	1	1	1	2	7	21	68	212	678	2,122	_____
> 3 to 4 miles	_____	2	1	1	1	1	4	13	42	131	417	1,306	_____
	Nearest Well =											Score =	

PA Table 2b: Karst Aquifers

Distance from Site	Population	Nearest Well (use 20 for karst)	Population Served by Wells Within Distance Category										Population Value
			1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	Greater than 100,000	
0 to ¼ mile	_____	20	1	2	6	18	52	163	521	1,633	5,214	16,325	_____
> ¼ to ½ mile	_____	20	1	1	3	10	32	101	323	1,012	3,233	10,121	_____
> ½ to 1 mile	_____	20	1	1	3	9	26	82	261	816	2,607	8,162	_____
> 1 to 2 miles	_____	20	1	1	3	9	26	82	261	816	2,607	8,162	_____
> 2 to 3 miles	_____	20	1	1	3	9	26	82	261	816	2,607	8,162	_____
> 3 to 4 miles	_____	20	1	1	3	9	26	82	261	816	2,607	8,162	_____
	Nearest Well =											Score =	

SURFACE WATER PATHWAY

Migration Route Sketch: Sketch the surface water migration pathway (freehand is acceptable) illustrating the drainage route and identifying water bodies, probable point of entry, flows, and targets.

SURFACE WATER PATHWAY
MIGRATION ROUTE SKETCH

Suface Water Migration Route Sketch:
(include runoff route, probable point of entry, 15-mile target distance limit, intakes, fisheries, and sensitive environments)

SURFACE WATER PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing hypotheses concerning the occurrence of a suspected release and the exposure of specific targets to a hazardous substance. The check-boxes record your professional judgment in evaluating these factors. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypotheses, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several site, source, and pathway conditions that could provide insight as to whether a release from the site is likely to have occurred. If a release is suspected, use the "Primary Targets" section to guide you through evaluation of some conditions that may help identify targets likely to be exposed to a hazardous substance. Record responses for the target that you feel has the highest probability of being exposed to a hazardous substance. You may use this section of the chart more than once, depending on the number of targets you feel may be considered "primary."

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.

If the distance to surface water is greater than 2 miles, do not evaluate the surface water migration pathway. Document the source of information in the text boxes below the surface water criteria list.

SURFACE WATER PATHWAY CRITERIA LIST

SUSPECTED RELEASE

Yes	No	Unk	
☐	☒	☐	Is surface water nearby?
☒	☐	☐	Is waste quantity particularly large?
☒	☐	☐	Is the drainage area large?
☒	☐	☐	Is rainfall heavy?
☐	☒	☐	Is the infiltration rate low?
☐	☒	☐	Are sources poorly contained or prone to runoff or flooding?
☐	☒	☐	Is a runoff route well defined (e.g., ditch or channel leading to surface water)?
☐	☒	☐	Is vegetation stressed along the probable run-off route?
☐	☒	☐	Are sediments or water unnaturally discolored?
☐	☒	☐	Is wildlife unnaturally absent?
☐	☒	☐	Has deposition of waste into surface water been observed?
☐	☒	☐	Is ground water discharge to surface water likely?
☐	☒	☐	Does analytical or circumstantial evidence suggest surface water contamination?
☐	☒		Other criteria? _____
☐	☒		**SUSPECTED RELEASE?**

PRIMARY TARGETS

Yes	No	Unk	
☐	☒	☐	Is any target nearby? If yes:
			☐ Drinking water intake ☐ Fishery ☐ Sensitive environment
☐	☒	☐	Has any intake, fishery, or recreational area been closed?
☐	☒	☐	Does analytical or circumstantial evidence suggest surface water contamination at or downstream of a target?
☐	☒	☐	Does any target warrant sampling? If yes:
			☐ Drinking water intake ☐ Fishery ☐ Sensitive environment
☐	☒		Other criteria? _____
☐	☒		**PRIMARY INTAKE(S) IDENTIFIED?**
☐	☒		**PRIMARY FISHERY(IES) IDENTIFIED?**
☐	☒		**PRIMARY SENSITIVE ENVIRONMENT(S) IDENTIFIED?**

Summarize the rationale for Suspected Release (attach an additional page if necessary):

Summarize the rationale for Primary Targets (attach an additional page if necessary):

SURFACE WATER PATHWAY LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics

The surface water pathway includes three threats: Drinking Water Threat, Human Food Chain Threat, and Environmental Threat. Answer the questions at the top of the page. Refer to the Surface Water Pathway Criteria List (page 11) to hypothesize whether you suspect that a hazardous substance associated with the site has been released to surface water. Record the distance to surface water (the shortest overland drainage distance from a source to a surface water body). Record the flood frequency at the site (e.g., 100-yr, 200-yr). If the site is located in more than one floodplain, use the most frequent flooding event. Identify surface water use(s) along the surface water migration path and their distance(s) from the site.

Likelihood of Release (LR)

1. **Suspected Release:** Hypothesize based on professional judgment guided by the Surface Water Pathway Criteria List (page 11). If you suspect a release to surface water, use only Column A for this pathway and do not evaluate factor 2.

2. **No Suspected Release:** If you do not suspect a release, determine score based on the shortest overland drainage distance from a source to a surface water body. If distance to surface water is 2,500 feet or less, assign a score of 500. If distance to surface water is greater than 2,500 feet, determine score based on flood frequency. If you do not suspect a release to surface water, use only Column B to score this pathway.

Drinking Water Threat Targets (T)

3. List all drinking water intakes on downstream surface water bodies along the surface water migration path. Record the intake name, the type of water body on which the intake is located, the flow of the water body, and the number of people served by the intake (apportion the population if part of a blended system).

4. **Primary Target Population:** Evaluate populations served by all drinking water intakes that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. In the space provided, enter the population served by all intakes you suspect have been exposed to a hazardous substance from the site. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine population served. Multiply by 10 to determine the Primary Target Population score. Remember, if you do not suspect a release, there can be no primary target population.

5. **Secondary Target Population:** Evaluate populations served by all drinking water intakes within the target distance limit that you do not suspect have been exposed to a hazardous substance. Use PA Table 3 (page 13) and enter the population served by intakes for each flow category. If only the number of residences is known, use the average county residents per household (rounded to the nearest integer) to determine population served. Circle the assigned value for the population in each flow category and enter it in the column on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

Gauging station data for many surface water bodies are available from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that the flow category "mixing zone of quiet flowing rivers" is limited to 3 miles from the probable point of entry.

6. **Nearest Intake** represents the threat posed to the drinking water intake that is most likely to be exposed to a hazardous substance. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 3 (page 13) for the lowest-flowing water body on which there is an intake.

7. **Resources:** A score of 5 can generally be assigned as a default measure. Assign zero only if surface water within the target distance limit has no resource use.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

SURFACE WATER PATHWAY
LIKELIHOOD OF RELEASE AND DRINKING WATER THREAT SCORESHEET

Pathway Characteristics

Do you suspect a release (see Surface Water Pathway Criteria List, page 111)? Yes ___ No X
Distance to surface water:
Flood frequency:
What is the downstream distance to the nearest drinking water intake? 7.5 miles
Nearest fishery? 7.5 miles Nearest sensitive environment? 7.5 miles

	A Suspected Release	B No Suspected Release	References
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to surface water (see page 11), assign a score of 550. Use only column A for this pathway.			
2. NO SUSPECTED RELEASE: If you do not suspect a release to surface water, use the table below to assign a score based on distance to surface water and flood frequency. Use only column B for this pathway.			
Distance to surface water ≤ 2,500 feet — 500			
Distance to surface water > 2,500 feet, and			
Site in annual or 10-year floodplain — 500			
Site in 100-year floodplain — 400			
Site in 500-year floodplain — 300			
Site outside 500-year floodplain — 100		100	
LR =		100	
DRINKING WATER THREAT TARGETS			
3. Record the water body type, flow (if applicable), and number of people served by each drinking water intake within the target distance limit. If there is no drinking water intake within the target distance limit, factors 4, 5, and 6 each receive zero scores.			
Intake Name / Water Body Type / Flow / People Served			
_____ _____ _____ cfs _____			
_____ _____ _____ cfs _____			
_____ _____ _____ cfs _____			
4. PRIMARY TARGET POPULATION: If you suspect any drinking water intake listed above has been exposed to a hazardous substance from the site (see Surface Water Pathway Criteria List, page 111), list the intake name(s) and calculate the factor score based on the total population served.			
_____, _____			
_____ people x 10 =			
5. SECONDARY TARGET POPULATION: Determine the number of people served by drinking water intakes that you do NOT suspect have been exposed to a hazardous substance from the site, and assign the total population score from PA Table 3.		0	
Are any intakes part of a blended system? Yes ___ No ___			
If yes, attach a page to show apportionment calculations.			
6. NEAREST INTAKE: If you have identified a primary target population for the drinking water threat (factor 4), assign a score of 50; otherwise, assign the Nearest Intake score from PA Table 3. If no drinking water intake exists within the target distance limit, assign a score of zero.		0	
7. RESOURCES		5	
T =		5	

PA TABLE 3: VALUES FOR SECONDARY SURFACE WATER TARGET POPULATIONS

Surface Water Body Flow (see PA Table 4)	Population	Nearest Intake (choose highest)	Population Served by Intakes Within Flow Category											Population Value
			1 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	
< 10 cfs	_____	20	2	6	16	52	163	521	1,633	5,214	16,326	52,136	163,248	_____
10 to 100 cfs	_____	2	1	1	2	6	16	52	163	521	1,633	5,214	16,326	_____
> 100 to 1,000 cfs	_____	1	0	0	1	1	2	6	16	52	163	521	1,633	_____
> 1,000 to 10,000 cfs	_____	0	0	0	0	0	1	1	2	6	16	52	163	_____
> 10,000 cfs or Great Lakes	_____	0	0	0	0	0	0	0	1	1	2	6	16	_____
3-mile Mixing Zone	_____	10	1	3	8	26	82	261	816	2,607	8,162	26,068	81,683	_____
Nearest Intake =													Score =	

PA TABLE 4: SURFACE WATER TYPE / FLOW CHARACTERISTICS WITH DILUTION WEIGHTS FOR SECONDARY SURFACE WATER SENSITIVE ENVIRONMENTS

Type of Surface Water Body		Dilution Weight
Water Body Type	Flow	
minimal stream	< 10 cfs	1
small to moderate stream	10 to 100 cfs	0.1
moderate to large stream	> 100 to 1,000 cfs	N/A
large stream to river	> 1,000 to 10,000 cfs	N/A
large river	> 10,000 cfs	N/A
3-mile mixing zone of quiet flowing streams or rivers	10 cfs or greater	N/A
coastal tidal water (harbors, sounds, bays, etc.), ocean, or Great Lakes	N/A	N/A

SURFACE WATER PATHWAY HUMAN FOOD CHAIN THREAT SCORESHEET

Likelihood of Release (LR)

LR is the same for all surface water pathway threats. Enter LR score from page 12.

Human Food Chain Threat Targets (T)

8. The only human food chain targets are fisheries. A fishery is an area of a surface water body from which food chain organisms are taken or could be taken for human consumption on a subsistence, sporting, or commercial basis. Food chain organisms include fish, shellfish, crustaceans, amphibians, and amphibious reptiles. Fisheries are delineated by changes in surface water body type (i.e., streams and rivers, lakes, coastal tidal waters, and oceans/Great Lakes) and whenever the flow characteristics of a stream or river change.

In the space provided, identify all fisheries within the target distance limit. Indicate the surface water body type and flow for each fishery. Gauging station flow data are available for many surface water bodies from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that, if there are no fisheries within the target distance limit, the Human Food Chain Threat Targets score is zero.

9. Primary fisheries are any fisheries within the target distance limit that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. If you identify any primary fisheries, list them in the space provided, enter 300 as the Primary Fisheries factor score, and do not evaluate Secondary Fisheries. Note that if you do not suspect a release, there can be no primary fisheries.

10. Secondary fisheries are fisheries that you do not suspect have been exposed to a hazardous substance. Evaluate this factor only if fisheries are present within the target distance limit, but none is considered a primary fishery.

A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.

B. If you do not suspect a release, evaluate this factor based on flow. In the absence of gauging station flow data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). Assign a Secondary Fisheries score from the table on the scoresheet using the lowest flow at any fishery within the target distance limit. (Dilution weight multiplier does not apply to PA evaluation of this factor.)

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

SURFACE WATER PATHWAY (continued)
HUMAN FOOD CHAIN THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Suspected Release	B No Suspected Release	Reference
Enter Surface Water Likelihood of Release score from page 12.	LR =		100	

HUMAN FOOD CHAIN THREAT TARGETS

8. Record the water body type and flow (if applicable) for each fishery within the target distance limit. If there is no fishery within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Fishery Name	Water Body Type	Flow
Cottonwood Creek	Creek	0 cfs
Ballview Lake	Lake	0 cfs
Village Creek	Creek	0 cfs
		cfs
		cfs

9. PRIMARY FISHERIES: If you suspect any fishery listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate Factor 10. List the primary fisheries:

_____, _____.

_____, _____.

10. SECONDARY FISHERIES

A. If you suspect a release to surface water and have identified a secondary fishery but no primary fishery, assign a score of 210.

B. If you do not suspect a release, assign a Secondary Fisheries score from the table below using the lowest flow at any fishery within the target distance limit.

Lowest Flow	Secondary Fisheries Score
< 10 cfs	210
10 to 100 cfs	30
> 100 cfs, coastal tidal waters, oceans, or Great Lakes	12

			210
	T =		210

SURFACE WATER PATHWAY ENVIRONMENTAL THREAT SCORESHEET

Likelihood of Release (LR)

LR is the same for all surface water pathway threats. Enter LR score from page 12.

Environmental Threat Targets (T)

11. PA Table 5 (page 16) lists sensitive environments for the Surface Water Pathway Environmental Threat. In the space provided, identify all sensitive environments located within the target distance limit. Indicate the surface water body type and flow at each sensitive environment. Gauging station flow data for many surface water bodies are available from USGS or other sources. In the absence of gauging station data, estimate flow using the list of surface water body types and associated flow categories in PA Table 4 (page 13). The flow for lakes is determined by the sum of flows of streams entering or leaving the lake. Note that if there are no sensitive environments within the target distance limit, the Environmental Threat Targets score is zero.

12. Primary sensitive environments are surface water sensitive environments within the target distance limit that you suspect have been exposed to a hazardous substance released from the site. Use professional judgment guided by the Surface Water Pathway Criteria List (page 11) to make this determination. If you identify any primary sensitive environments, list them in the space provided, enter 300 as the Primary Sensitive Environments factor score, and do not evaluate Secondary Sensitive Environments. Note that if you do not suspect a release, there can be no primary sensitive environments.

13. Secondary sensitive environments are surface water sensitive environments that you do not suspect have been exposed to a hazardous substance. Evaluate this factor only if surface water sensitive environments are present within the target distance limit, but none is considered a primary sensitive environment. Evaluate secondary sensitive environments based on flow.

- In the table provided, list all secondary sensitive environments on surface water bodies with flow of 100 cfs or less.

  1) Use PA Table 4 (page 13) to determine the appropriate dilution weight for each.

  2) Use PA Tables 5 and 6 (page 16) to determine the appropriate value for each sensitive environment type and for wetlands frontage.

  3) For a sensitive environment that falls into more than one of the categories in PA Table 5, sum the values for each type to determine the environment value (e.g., a wetland with 1.5 miles frontage (value of 50) that is also a critical habitat for a Federally designated endangered species (value of 100) would receive a total value of 150).

  4) For each sensitive environment, multiply the dilution weight by the environment type (or length of wetlands) value and record the product in the far-right column.

  5) Sum the values in the far-right column and enter the total as the Secondary Sensitive Environments score. Do not evaluate part B of this factor.

- If all secondary sensitive environments are on surface water bodies with flows greater than 100 cfs assign 10 as the Secondary Sensitive Environments score.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

SURFACE WATER PATHWAY (continued)
ENVIRONMENTAL THREAT SCORESHEET

LIKELIHOOD OF RELEASE		A Assumed Release	B No Assumed Release	Reference
Enter Surface Water Likelihood of Release score from page 12.	LR =		500	

ENVIRONMENTAL THREAT TARGETS

11. Record the water body type and flow (if applicable) for each surface water sensitive environment within the target distance limit (see PA Tables 4 and 5). If there is no sensitive environment within the target distance limit, assign a Targets score of 0 at the bottom of the page.

Environment Name	Water Body Type	Flow
Cotton Mill Creek	creek	0 cfs
Bay View Lake	lake	0 cfs
Village Creek	creek	0 cfs
		cfs
		cfs

12. PRIMARY SENSITIVE ENVIRONMENTS: If you suspect any sensitive environment listed above has been exposed to a hazardous substance from the site (see Surface Water Criteria List, page 11), assign a score of 300 and do not evaluate factor 13. List the primary sensitive environments:

_____, _____

_____, _____

13. SECONDARY SENSITIVE ENVIRONMENTS: If sensitive environments are present, but none is a primary sensitive environment, evaluate Secondary Sensitive Environments based on flow.

A. For secondary sensitive environments on surface water bodies with flows of 100 cfs or less, assign scores as follows, and do not evaluate part B of this factor:

Flow	Dilution Weight (PA Table 4)		Environment Type and Value (PA Tables 5 and 6)	Total
0 cfs	1	x	75 X 11 Endangered	825
cfs		x	=	
cfs		x	=	
cfs		x	=	
cfs		x	=	

Sum = 825

B. If all secondary sensitive environments are located on surface water bodies with flows > 100 cfs, assign a score of 10.

			0
T =			825

PA TABLE 5: SURFACE WATER AND AIR PATHWAY SENSITIVE ENVIRONMENTS VALUES

Sensitive Environment	*Assigned Value*
Critical habitat for Federally designated endangered or threatened species	100
Marine Sanctuary	
National Park	
Designated Federal Wilderness Area	
Ecologically important areas identified under the Coastal Zone Wilderness Act	
Sensitive Areas identified under the National Estuary Program or Near Coastal Water Program of the Clean Water Act	
Critical Areas identified under the Clean Lakes Program of the Clean Water Act (subareas in lakes or entire small lakes)	
National Monument (air pathway only)	
National Seashore Recreation Area	
National Lakeshore Recreation Area	
Habitat known to be used by Federally designated or proposed endangered or threatened species	75
National Preserve	
National or State Wildlife Refuge	
Unit of Coastal Barrier Resources System	
Federal land designated for the protection of natural ecosystems	
Administratively Proposed Federal Wilderness Area	
Spawning areas critical for the maintenance of fish/shellfish species within a river system, bay, or estuary	
Migratory pathways and feeding areas critical for the maintenance of anadromous fish species in a river system	
Terrestrial areas utilized for breeding by large or dense aggregations of vertebrate animals (air pathway) or semi-aquatic foragers (surface water pathway)	
National river reach designated as Recreational	
Habitat known to be used by State designated endangered or threatened species	50
Habitat known to be used by a species under review as to its Federal endangered or threatened status	
Coastal Barrier (partially developed)	
Federally designated Scenic or Wild River	
State land designated for wildlife or game management	25
State designated Scenic or Wild River	
State designated Natural Area	
Particular areas, relatively small in size, important to maintenance of unique biotic communities	
State designated areas for protection/maintenance of aquatic life under the Clean Water Act	5
Wetlands	See PA Table 6 (Surface Water Pathway) or PA Table 9 (Air Pathway)

PA TABLE 6: SURFACE WATER PATHWAY WETLANDS FRONTAGE VALUES

Total Length of Wetlands	*Assigned Value*
Less than 0.1 mile	0
0.1 to 1 mile	25
Greater than 1 to 2 miles	50
Greater than 2 to 3 miles	75
Greater than 3 to 4 miles	100
Greater than 4 to 8 miles	150
Greater than 8 to 12 miles	250
Greater than 12 to 16 miles	350
Greater than 16 to 20 miles	450
Greater than 20 miles	500

SURFACE WATER PATHWAY WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORES

Waste Characteristics (WC)

14. **Waste Characteristics:** Score is assigned from page 4. However, if a primary target has been identified for any surface water threat, assign either the score calculated on page 4 or a score of 32, whichever is greater.

Surface Water Pathway Threat Scores

Fill in the matrix with the appropriate scores from the previous pages. To calculate the score for each threat: multiply the scores for LR, T, and WC; divide the product by 82,500; and round the result to the nearest integer. The Drinking Water Threat and Human Food Chain Threat are each subject to a maximum of 100. The Environmental Threat is subject to a maximum of 60. Enter the rounded threat scores in the far-right column.

Surface Water Pathway Score

Sum the individual threat scores to determine the Surface Water Pathway Score. If the sum is greater than 100, assign 100.

SURFACE WATER PATHWAY (concluded)
WASTE CHARACTERISTICS, THREAT, AND PATHWAY SCORE SUMMARY

WASTE CHARACTERISTICS	A Suspected Release	B No Suspected Release
14. A. If you have identified any primary target for surface water (pages 12, 14, or 15), assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.		
B. If you have NOT identified any primary target for surface water, assign the waste characteristics score calculated on page 4.		32
WC =		32

SURFACE WATER PATHWAY THREAT SCORES

Threat	Likelihood of Release (LR) Score (from page 12)	Targets (T) Score (pages 12, 14, 15)	Pathway Waste Characteristics (WC) Score - (determined above)	Threat Score LR x T x WC / 82,500
Drinking Water	100	5	32	0.2
Human Food Chain	100	210	32	8.1
Environmental	100	825	32	32

SURFACE WATER PATHWAY SCORE
(Drinking Water Threat + Human Food Chain Threat + Environmental Threat): 40.3

$$\frac{100 \times 5 \times 32}{82,500} = 0.2$$

$$\frac{100 \times 210 \times 32}{82,500} = 8.1$$

$$\frac{100 \times 825 \times 32}{82,500} = 32$$

40.3

SOIL EXPOSURE PATHWAY CRITERIA LIST

Areas of surficial contamination can generally be assumed. This "Criteria List" helps guide the process of developing a hypothesis concerning the exposure of specific targets to a hazardous substance at the site. Use the "Resident Population" section to evaluate site and source conditions that may help identify targets likely to be exposed to a hazardous substance. The check-boxes record your professional judgment. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypothesis, list them at the bottom of the page or attach an additional page.

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question.

SOIL EXPOSURE PATHWAY CRITERIA LIST

SUSPECTED CONTAMINATION	*RESIDENT POPULATION*
Surficial contamination can generally be assumed.	Yes / No / Unk ☐ ☒ ☐ Is any residence, school, or daycare facility on or within 200 feet of an area of suspected contamination? ☐ ☒ ☐ Is any residence, school, or daycare facility located on adjacent land previously owned or leased by the site owner/operator? ☐ ☒ ☐ Is there a migration route that might spread hazardous substances near residences, schools, or daycare facilities? ☐ ☒ ☐ Have onsite or adjacent residents or students reported adverse health effects, exclusive of apparent drinking water or air contamination problems? ☐ ☒ ☐ Does any neighboring property warrant sampling? ☐ ☒ Other criteria?_____ ☐ ☒ RESIDENT POPULATION IDENTIFIED?

Summarize the rationale for Resident Population (attach an additional page if necessary):

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Identify people who may be exposed to a hazardous substance because they work at the facility, or reside or attend school or daycare on or within 200 feet of an area of suspected contamination. If the site is active, estimate the number of full and part-time workers. Note that evaluation of targets is based on current site conditions.

Likelihood of Exposure (LE)

1. Suspected Contamination: Areas of surficial contamination are present at most sites, and a score of 550 can generally be assigned as a default measure. Assign zero, which effectively eliminates the pathway from further consideration, only if there is no surficial contamination; reliable analytical data are generally necessary to make this determination.

Resident Population Threat Targets (T)

2. Resident Population corresponds to "primary targets" for the migration pathways. Use professional judgment guided by the Soil Exposure Pathway Criteria List (page 18) to determine if there are people living or attending school or daycare on or within 200 feet of areas of suspected contamination. Record the number of people identified as resident population and multiply by 10 to determine the Resident Population factor score.

3. Resident Individual: Assign 50 if you have identified a resident population; otherwise, assign zero.

4. Workers: Estimate the number of full and part-time workers at this facility and adjacent facilities where contamination is also suspected. Assign a score for the Workers factor from the table.

5. Terrestrial Sensitive Environments: In the table provided, list each terrestrial sensitive environment located on an area of suspected contamination. Use PA Table 7 (page 20) to assign a value for each. Sum the values and assign the total as the factor score.

6. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if there is no land resource use on an area of suspected contamination.

Sum the target scores.

Waste Characteristics (WC)

7. Enter the WC score determined on page 4.

Resident Population Threat Score: Multiply the scores for LE, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

Nearby Population Threat Score: Do not evaluate this threat if you gave a zero score to Likelihood of Exposure. Otherwise, assign a score based on the population within a 1-mile radius (use the same 1-mile radius population you evaluate for air pathway population targets):

Population Within One Mile	Nearby Population Threat Score
< 10,000	1
10,000 to 50,000	2
>50,000	4

Soil Exposure Pathway Score: Sum the Resident Population Threat score and the Nearby Population Threat score, subject to a maximum of 100.

SOIL EXPOSURE PATHWAY SCORESHEET

Pathway Characteristics	
Do any people live on or within 200 ft of areas of suspected contamination?	Yes ___ No X
Do any people attend school or daycare on or within 200 ft of areas of suspected contamination?	Yes ___ No X
Is the facility active? Yes ___ No X If yes, estimate the number of workers: ___	

	Suspected Contamination	Reference
LIKELIHOOD OF EXPOSURE		
1. SUSPECTED CONTAMINATION: Surficial contamination can generally be assumed, and a score of 550 assigned. Assign zero only if the absence of surficial contamination can be confidently demonstrated. LE =	550	
RESIDENT POPULATION THREAT TARGETS		
2. RESIDENT POPULATION: Determine the number of people occupying residences or attending school or daycare on or within 200 feet of areas of suspected contamination (see Soil Exposure Pathway Criteria List, page 181). 0 people x 10 =	0	
3. RESIDENT INDIVIDUAL: If you have identified a resident population (factor 2), assign a score of 50; otherwise, assign a score of 0.	0	
4. WORKERS: Use the following table to assign a score based on the total number of workers at the facility and nearby facilities with suspected contamination:	0	
5. TERRESTRIAL SENSITIVE ENVIRONMENTS: Use PA Table 7 to assign a value for each terrestrial sensitive environment on an area of suspected contamination:	0	
6. RESOURCES	5	
T =	5	
WASTE CHARACTERISTICS		
7. Assign the waste characteristics score calculated on page 4. WC =	32	
RESIDENT POPULATION THREAT SCORE: LE X T X WC / 82,500.	1.1	1.06
NEARBY POPULATION THREAT SCORE:		
SOIL EXPOSURE PATHWAY SCORE: Resident Population Threat + Nearby Population Threat	2	

Number of Workers	Score
0	0
1 to 100	5
101 to 1,000	10
>1,000	15

Terrestrial Sensitive Environment Type	Value

PA TABLE 7: SOIL EXPOSURE PATHWAY
TERRESTRIAL SENSITIVE ENVIRONMENT VALUES

Terrestrial Sensitive Environment	*Assigned Value*
Terrestrial critical habitat for Federally designated endangered or threatened species National Park Designated Federal Wilderness Area National Monument	100
Terrestrial habitat known to be used by Federally designated or proposed threatened or endangered species National Preserve (terrestrial) National or State terrestrial Wildlife Refuge Federal land designated for protection of natural ecosystems Administratively proposed Federal Wilderness Area Terrestrial areas utilized by large or dense aggregations of animals (vertebrate species) for breeding	75
Terrestrial habitat used by State designated endangered or threatened species Terrestrial habitat used by species under review for Federal designated endangered or threatened status	50
State lands designated for wildlife or game management State designated Natural Areas Particular areas, relatively small in size, important to maintenance of unique biotic communities	25

AIR PATHWAY CRITERIA LIST

This "Criteria List" helps guide the process of developing a hypothesis as to whether a release to the air is likely to be detected. The check-boxes record your professional judgment. Answers to all of the listed questions may not be available during the PA. Also, the list is not all-inclusive; if other criteria help shape your hypothesis, list them at the bottom of the page or attach an additional page.

The "Suspected Release" section identifies several conditions that could provide insight as to whether a release from the site is likely to be detected. If a release is suspected, primary targets are any residents, workers, students, and sensitive environments on or within ¼ mile of the site.

Check the boxes to indicate a "yes," "no," or "unknown" answer to each question. If you check the "Suspected Release" box as "yes," make sure you assign a Likelihood of Release value of 550 for the pathway.

AIR PATHWAY CRITERIA LIST

SUSPECTED RELEASE	*PRIMARY TARGETS*
Y N U e o n s k ☐ ☐ ☐ Are odors currently reported? ☐ ☐ ☐ Has release of a hazardous substance to the air been directly observed? ☐ ☐ ☐ Are there reports of adverse health effects (e.g., headaches, nausea, dizziness) potentially resulting from migration of hazardous substances through the air? ☐ ☐ ☐ Does analytical or circumstantial evidence suggest a release to the air? ☐ ☐ Other criteria?_____ ☐ ☐ **SUSPECTED RELEASE?**	If you suspect a release to air, evaluate all populations and sensitive environments within 1/4 mile (including those onsite) as primary targets.

Summarize the rationale for Suspected Release (attach an additional page if necessary):

AIR PATHWAY SCORESHEET

Pathway Characteristics

Answer the questions at the top of the page. Refer to the Air Pathway Criteria List (page 21) to hypothesize whether you suspect that a hazardous substance release to the air could be detected. Due to dispersion, releases to air are not as persistent as releases to water migration pathways and are much more difficult to detect. Develop your hypothesis concerning the release of hazardous substances to air based on "real time" considerations. Record the distance (in feet) from any source to the nearest regularly occupied building.

Likelihood of Release (LR)

1. Suspected Release: Hypothesize based on professional judgment guided by the Air Pathway Criteria List (page 21). If you suspect a release to air, use only Column A for this pathway and do not evaluate factor 2.

2. No Suspected Release: If you do not suspect a release, enter 500 and use only Column B for this pathway.

Targets (T)

3. Primary Target Population: Evaluate populations subject to exposure from release of a hazardous substance from the site. If you suspect a release, the resident, student, and worker populations on and within ¼ mile of the site are considered primary target population. If only the number of residences is known, use the average county residents per household (rounded up to the next integer) to determine the population. In the space provided, enter this population. Multiply the population by 10 to determine the Primary Target Population score. Note that if you do not suspect a release, there can be no primary target population.

4. Secondary Target Population: Evaluate populations in distance categories not suspected to be subject to exposure from release of a hazardous substance from the site. If you suspect a release, residents, students, and workers in the ¼- to 4-mile distance categories are secondary target population. If you do not suspect a release, all residents, students, and workers onsite and within 4 miles are considered secondary target population.

Use PA Table 8 (page 23). Enter the population in each secondary target population distance category, circle the assigned value, and record it on the far-right side of the table. Sum the far-right column and enter the total as the Secondary Target Population factor score.

5. Nearest Individual represents the threat posed to the person most likely to be exposed to a hazardous substance release from the site. If you have identified a primary target population, enter 50. Otherwise, assign the score from PA Table 8 (page 23) for the closest distance category in which you have identified a secondary target population.

6. Primary Sensitive Environments: If a release is suspected, all sensitive environments on or within ¼ mile of the site are considered primary targets. List them and assign values for sensitive environment type (from PA Table 5, page 16) and/or wetland acreage (from PA Table 9, page 23). Sum the values and enter the total as the factor score.

7. Secondary Sensitive Environments: If a release is suspected, sensitive environments in the ¼- to ½-mile distance category are secondary targets; greater distances need not be evaluated because distance weighting greatly diminishes the impact on site score. If you do not suspect a release, all sensitive environments on and within ½ mile of the site are considered secondary targets. List each secondary sensitive environment on PA Table 10 (page 23) and assign a value to each using PA Tables 5 and 9. Multiply each value by the indicated distance weight and record the product in the far-right column. Sum the products and enter the total as the factor score.

8. Resources: A score of 5 can generally be assigned as a default measure. Assign zero only if there is no land resource use within ½ mile.

Sum the target scores in Column A (Suspected Release) or Column B (No Suspected Release).

Waste Characteristics (WC)

9. Waste Characteristics: Score is assigned from page 4. However, if you have identified any primary target for the air pathway, assign either the score calculated on page 4 or a score of 32, whichever is greater.

Air Pathway Score: Multiply the scores for LR, T, and WC. Divide the product by 82,500. Round the result to the nearest integer. If the result is greater than 100, assign 100.

AIR PATHWAY SCORESHEET

Pathway Characteristics	
Do you suspect a release (see Air Pathway Criteria List, page 21)?	Yes ___ No ___
Distance to the nearest individual:	_____ ft

	A Suspected Release	B No Suspected Release	Reference
LIKELIHOOD OF RELEASE			
1. SUSPECTED RELEASE: If you suspect a release to air (see page 21), assign a score of 550. Use only column A for this pathway.			
2. NO SUSPECTED RELEASE: If you do not suspect a release to air, assign a score of 500. Use only column B for this pathway.			
LR =			
TARGETS			
3. PRIMARY TARGET POPULATION: Determine the number of people subject to exposure from a suspected release of hazardous substances to the air. _____ people x 10 =			
4. SECONDARY TARGET POPULATION: Determine the number of people not suspected to be exposed to a release to air, and assign the total population score using PA Table 8.			
5. NEAREST INDIVIDUAL: If you have identified any Primary Target Population for the air pathway, assign a score of 50; otherwise, assign the Nearest Individual score from PA Table 8.			
6. PRIMARY SENSITIVE ENVIRONMENTS: Sum the sensitive environment values (PA Table 5) and wetland acreage values (PA Table 6) for environments subject to exposure from a suspected release to the air.			
Sum =			
7. SECONDARY SENSITIVE ENVIRONMENTS: Use PA Table 10 to determine the score for secondary sensitive environments.			
8. RESOURCES			
T =			
WASTE CHARACTERISTICS			
9. A. If you have identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4, or a score of 32, whichever is GREATER; do not evaluate part B of this factor.			
B. If you have NOT identified any Primary Target for the air pathway, assign the waste characteristics score calculated on page 4.			
WC =			

AIR PATHWAY SCORE:	$\frac{LR \times T \times WC}{82,500}$	

Sensitive Environment Type	Value

PA TABLE 8: VALUES FOR SECONDARY AIR TARGET POPULATIONS

Distance from Site	Population	Nearest Individual (choose highest)	Population Within Distance Category: 1 to 10	11 to 30	31 to 100	101 to 300	301 to 1,000	1,001 to 3,000	3,001 to 10,000	10,001 to 30,000	30,001 to 100,000	100,001 to 300,000	300,001 to 1,000,000	Greater than 1,000,000	Population Value
Onsite	_____	20	1	2	6	18	52	163	521	1,633	5,214	16,326	52,136	163,248	_____
>0 to ¼ mile	_____	20	1	1	1	4	13	41	130	408	1,303	4,081	13,034	40,811	_____
>¼ to ½ mile	_____	2	0	0	1	1	3	9	28	88	282	882	2,816	8,816	_____
>½ to 1 mile	_____	1	0	0	0	1	1	3	8	26	83	261	834	2,612	_____
>1 to 2 miles	_____	0	0	0	0	0	1	1	3	8	27	83	266	833	_____
>2 to 3 miles	_____	0	0	0	0	0	1	1	1	4	12	38	120	376	_____
>3 to 4 miles	_____	0	0	0	0	0	0	1	1	2	7	23	73	229	_____
Nearest Individual =														Score =	

PA TABLE 9: AIR PATHWAY VALUES FOR WETLAND AREA

Wetland Area	Assigned Value
Less than 1 acre	0
1 to 50 acres	25
Greater than 50 to 100 acres	75
Greater than 100 to 150 acres	125
Greater than 150 to 200 acres	175
Greater than 200 to 300 acres	250
Greater than 300 to 400 acres	350
Greater than 400 to 500 acres	450
Greater than 500 acres	500

PA TABLE 10: DISTANCE WEIGHTS AND CALCULATIONS FOR AIR PATHWAY SECONDARY SENSITIVE ENVIRONMENTS

Distance	Distance Weight	Sensitive Environment Type and Value (from PA Table 6 or 9)	Product
Onsite	0.10	x _____	
		x _____	
0-1/4 mi	0.025	x _____	
		x _____	
		x _____	
1/4-1/2 mi	0.0064	x _____	
		x _____	
		x _____	
		x _____	
Total Environments Score =			

SITE SCORE CALCULATION

In the column labeled S, record the Ground Water Pathway score, the Surface Water Pathway score, the Soil Exposure Pathway score, and the Air Pathway score. Square each pathway score and record the result in the S^2 column. Sum the squared pathway scores. Divide the sum by 4, and take the square root of the result to obtain the Site Score.

SUMMARY

Answer the summary questions, which ask for a qualitative evaluation of the relative risk of targets being exposed to a hazardous substance from the site. You may find your responses to these questions a good cross-check against the way you scored the individual pathways. For example, if you scored the ground water pathway on the basis of no suspected release and secondary targets only, yet your response to question #1 is "yes," this presents apparently conflicting conclusions that you need to reconsider and resolve. Your answers to the questions on page 24 should be consistent with your evaluations elsewhere in the PA scoresheets package.

SITE SCORE CALCULATION

	S	S^2
GROUND WATER PATHWAY SCORE (S_{gw}):	1.1	1.21
SURFACE WATER PATHWAY SCORE (S_{sw}):	40.3	1624.09
SOIL EXPOSURE PATHWAY SCORE (S_s):	2	4
AIR PATHWAY SCORE (S_a):		
SITE SCORE: $\sqrt{\frac{S_{gw}^2 + S_{sw}^2 + S_s^2 + S_a^2}{4}}$		20.2

SUMMARY

	YES	NO
1. Is there a high possibility of a threat to any nearby drinking water well(s) by migration of a hazardous substance in ground water?	☐	☒
A. If yes, identify the well(s). _____		
B. If yes, how many people are served by the threatened well(s)? _____		
2. Is there a high possibility of a threat to any of the following by hazardous substance migration in surface water?		
A. Drinking water intake	☐	☒
B. Fishery	☐	☒
C. Sensitive environment (wetland, critical habitat, others)	☐	☒
D. If yes, identify the target(s). _____		
3. Is there a high possibility of an area of surficial contamination within 200 feet of any residence, school, or daycare facility?	☐	☒
If yes, identify the property(ies) and estimate the associated population(s). _____		
4. Are there public health concerns at this site that are not addressed by PA scoring considerations? If yes, explain: _____	☐	☒

EPA Potential Hazardous Waste Site Preliminary Assessment Form

Identification

State: AL | CERCLIS Number: 0000928762

CERCLIS Discovery Date: 11/22/99

1. General Site Information

Name: JAFFE WHOLESALE IRON AND METAL CO.	Street Address: 2850 5TH AVENUE NORTH				
City: BIRMINGHAM	State: AL	Zip Code: 35203	County: JEFFERSON	Co. Code:	Cong. Dist:
Latitude: 33° 31' 48" Longitude: 86° 47' 40"	Approximate Area of Site: 992 Acres _____ Square Ft	Status of Site: ☐ Active ☐ Not Specified ☒ Inactive ☐ NA (GW plume, etc.)			

2. Owner/Operator Information

Owner: LIONEL KIMERLING	Operator:
Street Address: C/O ALSTIN AND BIRD, 1 ATLANTIC CENTER, 1201 W. PEACHTREE STREET	Street Address:
City: ATLANTA	City:
State: GA Zip Code: 30309 Telephone: (978) 287-0404	State: Zip Code: Telephone: ( )

Type of Ownership:
☒ Private ☐ Federal Agency Name _____ ☐ State ☐ Indian ☐ County ☐ Municipal ☐ Not Specified ☐ Other _____

How Initially Identified:
☐ Citizen Complaint ☐ PA Petition ☒ State/Local Program ☐ RCRA/CERCLA Notification ☐ Federal Program ☐ Incidental ☐ Not Specified ☐ Other _____

3. Site Evaluator Information

Name of Evaluator: PAUL I. OYEGBEDA	Agency/Organization: ADEM-LAND DIVISION-HWM	Date Prepared: JUNE 9, 2000
Street Address: 1400 COLISEUM BOULEVARD	City: MONTGOMERY	State: AL
Name of EPA or State Agency Contact: BRIAN FARRIER	Street Address: ATLANTA FEDERAL CENTER 61 FORSYTH STREET S.W.	
City: ATLANTA	State: GA	Telephone: (404) 562-8955

4. Site Disposition (for EPA use only)

Emergency Response/Removal Assessment Recommendation: ☐ Yes ☐ No Date: _____	CERCLIS Recommendation: ☐ Higher Priority SI ☐ Lower Priority SI ☐ NFRAP ☐ RCRA ☐ Other _____ Date: _____	Signature: Name (type): Position:

EPA **Potential Hazardous Waste Site**
Preliminary Assessment Form - Page 2 of 4

CERCLIS Number: 000909280762

5. General Site Characteristics

Predominant Land Uses Within 1 Mile of Site (check all that apply):
- [X] Industrial
- [X] Commercial
- [ ] Residential
- [ ] Forest/Fields
- [ ] Agriculture
- [ ] Mining
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility _____
- [ ] Other _____

Site Setting:
- [X] Urban
- [ ] Suburban
- [ ] Rural

Years of Operation:
Beginning Year _____
Ending Year _____
- [ ] Unknown

Type of Site Operations (check all that apply):
- [X] Manufacturing (must check subcategory)
  - [ ] Lumber and Wood Products
  - [ ] Inorganic Chemicals
  - [ ] Plastic and/or Rubber Products
  - [ ] Paints, Varnishes
  - [ ] Industrial Organic Chemicals
  - [ ] Agricultural Chemicals (e.g., pesticides, fertilizers)
  - [ ] Miscellaneous Chemical Products (e.g., adhesives, explosives, ink)
  - [ ] Primary Metals
  - [ ] Metal Coating, Plating, Engraving
  - [ ] Metal Forging, Stamping
  - [ ] Fabricated Structural Metal Products
  - [ ] Electronic Equipment
  - [ ] Other Manufacturing
- [ ] Mining
  - [ ] Metals
  - [ ] Coal
  - [ ] Oil and Gas
  - [ ] Non-metallic Minerals
- [ ] Retail
- [ ] Recycling
- [ ] Junk/Salvage Yard
- [ ] Municipal Landfill
- [ ] Other Landfill
- [ ] DOD
- [ ] DOE
- [ ] DOI
- [ ] Other Federal Facility _____
- [ ] RCRA
  - [ ] Treatment, Storage, or Disposal
  - [ ] Large Quantity Generator
  - [ ] Small Quantity Generator
  - [ ] Subtitle D
    - [ ] Municipal
    - [ ] Industrial
  - [ ] "Converter"
  - [ ] "Protective Filer"
  - [ ] "Non- or Late Filer"
- [ ] Not Specified
- [ ] Other _____

Waste Generated:
- [ ] Onsite
- [ ] Offsite
- [ ] Onsite and Offsite

Waste Deposition Authorized By:
- [ ] Present Owner
- [ ] Former Owner
- [ ] Present & Former Owner
- [ ] Unauthorized
- [X] Unknown

Waste Accessible to the Public:
- [X] Yes
- [ ] No

Distance to Nearest Dwelling, School, or Workplace:
N/A Feet

6. Waste Characteristics Information

Source Type: (check all that apply)	Source Waste Quantity: (include units)	Tier[a]:
[ ] Landfill		
[ ] Surface Impoundment		
[ ] Drums		
[ ] Tanks and Non-Drum Containers		
[ ] Chemical Waste Pile		
[ ] Scrap Metal or Junk Pile		
[ ] Tailings Pile		
[ ] Trash Pile (open dump)		
[ ] Land Treatment		
[ ] Contaminated Ground Water Plume (unidentified source)		
[ ] Contaminated Surface Water/Sediment (unidentified source)		
[ ] Contaminated Soil		
[ ] Other _____		
[ ] No Sources		

[a] C = Constituent, W = Wastestream, V = Volume, A = Area

General Types of Waste (check all that apply)
- [ ] Metals
- [ ] Organics
- [ ] Inorganics
- [ ] Solvents
- [ ] Paints/Pigments
- [ ] Laboratory/Hospital Waste
- [ ] Radioactive Waste
- [ ] Construction/Demolition Waste
- [ ] Pesticides/Herbicides
- [ ] Acids/Bases
- [ ] Oily Waste
- [ ] Municipal Waste
- [ ] Mining Waste
- [ ] Explosives
- [ ] Other _____

Physical State of Waste as Deposited (check all that apply):
- [ ] Solid
- [ ] Sludge
- [ ] Powder
- [ ] Liquid
- [ ] Gas

EPA Potential Hazardous Waste Site
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7. Ground Water Pathway

Is Ground Water Used for Drinking Water Within 4 Miles:
☐ Yes
☒ No

Type of Drinking Water Wells Within 4 Miles (check all that apply):
☐ Municipal
☐ Private
☒ None

Is There a Suspected Release to Ground Water:
☐ Yes
☒ No

Have Primary Target Drinking Water Wells Been Identified:
☐ Yes
☒ No

If Yes, Enter Primary Target Population:
_____ People

Depth to Shallowest Aquifer:
0 to 25 Feet

Karst Terrain/Aquifer Present:
☒ Yes
☐ No

Nearest Designated Wellhead Protection Area:
☐ Underlies Site
☐ >0 - 4 Miles
☒ None Within 4 Miles

List Secondary Target Population Served by Ground Water Withdrawn From:

0 - ¼ Mile	
> ¼ - ½ Mile	
> ½ - 1 Mile	N/A
>1 - 2 Miles	
>2 - 3 Miles	
>3 - 4 Miles	
Total Within 4 Miles	

8. Surface Water Pathway

Type of Surface Water Draining Site and 15 Miles Downstream (check all that apply):
☐ Stream ☐ River ☐ Pond ☐ Lake
☐ Bay ☐ Ocean ☒ Other _____

Shortest Overland Distance From Any Source to Surface Water:
_____ Feet
1.0 Miles

Is There a Suspected Release to Surface Water:
☐ Yes
☐ No

Site is Located in:
☐ Annual - 10 yr Floodplain
☐ >10 yr - 100 yr Floodplain
☐ >100 yr - 500 yr Floodplain
☐ >500 yr Floodplain

Drinking Water Intakes Located Along the Surface Water Migration Path:
☐ Yes
☒ No

Have Primary Target Drinking Water Intakes Been Identified:
☐ Yes
☒ No

If Yes, Enter Population Served by Primary Target Intakes:
_____ People

List All Secondary Target Drinking Water Intakes:

Name	Water Body	Flow (cfs)	Population Served
	N/A		

Total within 15 Miles _____

Fisheries Located Along the Surface Water Migration Path:
☒ Yes
☐ No

Have Primary Target Fisheries Been Identified:
☐ Yes
☒ No

List All Secondary Target Fisheries:

Water Body/Fishery Name	Flow (cfs)
Cotton Mill Creek	0
Village Creek	0
Bay View Lake	0

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8. Surface Water Pathway (continued)

Wetlands Located Along the Surface Water Migration Path:
☐ Yes
☒ No

Have Primary Target Wetlands Been Identified:
☐ Yes
☒ No

List Secondary Target Wetlands:

Water Body	Flow (cfs)	Frontage Miles

Other Sensitive Environments Located Along the Surface Water Migration Path:
☒ Yes
☐ No

Have Primary Target Sensitive Environments Been Identified:
☐ Yes
☒ No

List Secondary Target Sensitive Environments:

Water Body	Flow (cfs)	Sensitive Environment Type
Cotton Mill Creek	0	11 Endangered Threatened Species
Bay View Lake	0	
Village Creek	0	

9. Soil Exposure Pathway

Are People Occupying Residences or Attending School or Daycare on or Within 200 Feet of Areas of Known or Suspected Contamination:
☐ Yes
☒ No

If Yes, Enter Total Resident Population:
_____ People

Number of Workers Onsite:
☒ None
☐ 1 - 100
☐ 101 - 1,000
☐ >1,000

Have Terrestrial Sensitive Environments Been Identified on or Within 200 Feet of Areas of Known or Suspected Contamination:
☒ Yes
☐ No

If Yes, List Each Terrestrial Sensitive Environment:
Red-cockaded Woodpecker
Wood Stork

10. Air Pathway

Is There a Suspected Release to Air:
☐ Yes
☒ No

Enter Total Population on or Within:

Onsite	0
0 - ¼ Mile	306
> ¼ - ½ Mile	1052
> ½ - 1 Mile	5,978
> 1 - 2 Miles	36,087
> 2 - 3 Miles	54,095
> 3 - 4 Miles	92,672
Total Within 4 Miles	190,190

Wetlands Located Within 4 Miles of the Site:
☐ Yes
☒ No

Other Sensitive Environments Located Within 4 Miles of the Site:
☒ Yes
☐ No

List All Sensitive Environments Within ½ Mile of the Site:

Distance	Sensitive Environment Type/Wetlands Area (acres)
Onsite	
0 - ¼ Mile	N/A
> ¼ - ½ Mile	